Order Code RL33184

CRS Report for Congress
Received through the CRS Web

California's San Joaquin Valley: A Region in Transition

December 12, 2005

Tadlock Cowan, Coordinator
Analyst in Rural and Regional Development Policy
Resources, Science, and Industry Division

California's San Joaquin Valley: A Region in Transition

Summary

CRS was requested to undertake a study of the San Joaquin Valley (SJV) and a comparison with another U.S. region. The eight-county San Joaquin Valley, part of California's Central Valley, is home to 5 of the 10 most agriculturally productive counties in the United States. By a wide range of indicators, the SJV is also one of the most economically depressed regions of the United States. This report analyzes the SJV's counties and statistically documents the basis of current socioeconomic conditions. The report further explores the extent to which the SJV shares similarities with and differs from the Appalachian Regional Commission (ARC) area and a 68-county Central Appalachian subregion which contains some of the most economically distressed counties in Appalachia. The report also examines the role of federal expenditures in the cities and counties of the SJV.

During the past twenty-five years, population growth rates in the SJV were significantly higher than for California or the United States and their projected growth rates over the next 20 years are also significantly higher. In 2000, the SJV also had substantially higher rates of poverty than California or the United States. Poverty rates were also significantly higher in the SJV than in the ARC region, although the rate is somewhat lower than that of the Central Appalachian subregion. Unemployment rates in the SJV were higher than in California or the United States and the ARC area. Per capita income and average family income were higher in the SJV than in Central Appalachia, but per capita income in the SJV was lower than in the ARC region as a whole. SJV households also had higher rates of public assistance income than did Central Appalachian households. Madera County ranked among the 10 lowest per capita income Metropolitan Statistical Areas (MSAs) in the United States in 2003, and the other 5 MSAs in the San Joaquin were all in the bottom 20% of all U.S. MSAs. Other indicators of social well-being discussed in the report showed that the SJV is a region of significant economic distress.

Data from the U.S. Bureau of the Census's *Consolidated Federal Funds Reports* for 2002 and 2003 showed that every SJV county received fewer federal funds than the national per capita average or for California. Most SJV counties received approximately $1,240- $2,800 per capita less than the national per capita rate in 2002. Madera County had $3,176 per capita less than the national per capita rate in 2003. Two rural counties adjacent to the SJV, Mariposa and Tuolomne, received significantly higher per capita rates of federal funding in 2003 than the SJV. In 2002, the SJV received $1,559 less per capita in federal funds than the ARC region as a whole. The SJV also received $2,860 per capita less than the Tennessee Valley Authority region in 2003. Other federal funds data for 2000 also show that the per capita rate of federal spending was lower in the SJV than in the generally depressed Central Appalachian subregion.

In addition to examining socioeconomic conditions in the SJV, the report provides analysis of water supply and quality issues especially those concerning agriculture, air quality concerns, and rail and shipping issues.

This report will not be updated.

Contributing Staff

Areas of Expertise	Name	Division	Telephone
Regional Economic Development, Agriculture, Federal Expenditures, and Project Coordinator	Tadlock Cowan	RSI	7-7600
Economic, Social, and Demographic Information	Gerald Mayer	DSP	7-7815
Air Quality	James McCarthy	RSI	7-7225
Census of Agriculture and Electronic Data Resources	Carol Canada	KSG	7-7619
Education	David Smole	DSP	7-0624
Electronic Publishing	Atilla Akgun Shelly Butts Laura Comay Shelley Harlan Katie Yancey	ERPO	7-8734
Food Stamps	Joe Richardson	DSP	7-7325
Geographical Information System Cartography	Virginia Mason	GMD	7-8520
Health Indicators	Pamela Smith	DSP	7-7048
Highways	Robert Kirk	RSI	7-7769
Medicare	Paulette Morgan	DSP	7-7317
Obesity	Donna Porter	DSP	7-7032
Teen Births	Carmen Solomon-Fears	KSG	7-7306
Transportation Infrastructure and Economic Development	John Frittelli	RSI	7-7033
Water Supply and Infrastructure	Betsy Cody	RSI	7-7229
Water Quality	Claudia Copeland	RSI	7-7227

All Divisions are CRS except Geography and Maps, a Division of the Library of Congress. Abbreviations: RSI = Resources, Science and Industry; DSP = Domestic Social Policy; KSG = Knowledge Service Group; ERPO = Electronic Research Products; GMD = Geography and Map Division

Contents

Chapter 1 — An Overview of the San Joaquin Valley 1
Introduction 1
Contemporary Research on the SJV 3
Demographic Issues and the Role of Farmworkers 4
Agricultural Immigration 7
Employment, Poverty, and Income 9
Regional Approaches to Economic Development 11
Introduction 11
The Appalachian Regional Commission 12
Tennessee Valley Authority 14
Delta Regional Authority 15
The United States-Mexico Border Health Commission 15
The Northern Great Plains Regional Authority (NGPRA) 16
Denali Commission 17

Chapter 2 — The San Joaquin Valley and Appalachia: A Socioeconomic Comparison 19
Overview 19
Socioeconomic Indicators in the SJV and Appalachia, 1980-2003 25
County and Regional Population Characteristics 25
Appalachia's Demographic Structure 27
County and Regional Poverty Rates 47
Other Poverty Measures: Food Stamps, Public Assistance Income, Health Insurance, and Medicaid 53
County and Regional Employment and Income Measures 66
County and Regional Educational Measures 93
Health and Disease Rates in the SJV 103
Age-Adjusted Death Rates from Cancers 106
Health and Disease Profile of Appalachia 107
Crimes and Crime Rates in the SJV and Appalachia 127

Chapter 3 — Federal Direct Expenditures in the San Joaquin Valley and the Appalachian Regional Commission Area 133
Scope 133
The Consolidated Federal Funds Report 134
Comparing FY2002 Federal Expenditures in the San Joaquin, the United States, and California 136
Federal Funding in the SJV and the TVA for FY2003 138
Comparing Federal Funding in the Appalachian Regional Commission Area to Federal Funding in the SJV 139
Federal Funding in Appalachia and the San Joaquin: The Economic Research Service Data 146
Geographical Information System Mapping of Federal Funds Data 153

Chapter 4 — The Economic Structure of the San Joaquin Valley 163
Introduction 163
Agriculture in the SJV 164

Trends in the Structure of SJV Agriculture 164
Agriculture and SJV Communities 166
Agricultural Land Conversion 167
SJV Farm Characteristics 168
Agricultural Labor 170
Agriculture's Future in the San Joaquin 190
The Non-Agricultural Economy of the San Joaquin 192
Overview 192
SJV County Employment Profiles 193
Appalachian State Employment Profiles 210
Labor Force Characteristics in the San Joaquin 210
Fresno Regional Jobs Initiative 221
The Health Care Industry as a Growth Sector for the SJV 223

Chapter 5 — Selected Natural Resource and Environmental Issues in the SJV 244
Water Resources of the SJV 244
Water Supply Infrastructure 245
Water Quality Issues in the SJV 248
Overview 248
Irrigated Agriculture and Water Quality 248
Actions to Address Impaired Waters 250
A TMDL Example 252
Financial Assistance 253
Managing Manure at Concentrated Animal Feeding Operations 253
Funding Sources for CAFOs 254
Air Quality Issues in the SJV 256
Ozone 256
Particulate Matter (PM_{10} and $PM_{2.5}$) 258
Federal Assistance 259

Chapter 6 — Transportation Investment and Economic Development 260
The Federal-Aid Highway System and the SJV 260
The Obligation of Federal-Aid Highway Funds in the SJV 262
The Relation Between Freight Infrastructure and Economic Development 264
Supporting the Perishable Goods Delivery Network 264
Warehouse and Distribution Employment 266
High Speed Rail and Economic Development 269

APPENDIX A: Reports and Studies on the SJV: 1980-2005 272
Water Resources Management and Geomorphology 272
Water Quality 274
Natural Resources: Ecology 275
Labor and Employment 276
Poverty and Income 276
Population and Demography 277
Economic Growth and Development 278
Education and Training 279
Socioeconomic Surveys of Central Valley Residents 280
Agriculture in California and the San Joaquin/Central Valley 280

Publications of the Center for Public Policy Studies, California State University-Stanislaus 281
Public Finance 283
Great Valley Center Publications 283

APPENDIX B: Data Sources 286

APPENDIX C: San Joaquin Valley Governments and Institutes 287
Public Policy Analysis Groups 288

APPENDIX D: Central Appalachian Counties As Defined by USDA's Economic Research Service 290

APPENDIX E: Counties of the Tennessee Valley Authority 291

APPENDIX F: Federal Direct Expenditures and Obligations by Individual Program and San Joaquin Valley County 292

List of Figures

Figure 1. The San Joaquin Valley of California 1
Figure 2. The Appalachian Regional Commission Area and its Distressed Counties 24
Figure 3. Percent Change in Mexican-Born Population by County, 1990-2000 39
Figure 4. Percent of Persons Below Poverty Level by County (2000) 48
Figure 5. Percent of Households Receiving Public Assistance by County (2000) 60
Figure 6. Median Family Income By County 75
Figure 7. Percent of Persons with Education Less Than High School by County (2000) 96
Figure 8. Percent of Persons with a Bachelors Degree or Advanced Degree by County (2000) 97
Figure 9. Total Federal Assistance by County, FY2000 153
Figure 10. Total Federal Assistance Per Capita, FY2000 154
Figure 11. Federal Assistance per Capita for Agriculture and Natural Resources by County, FY2000 155
Figure 12. Federal Assistance Per Capita for Community Resources 156
Figure 13. Federal Assistance Per Capita for Defense and Space by County, FY2000 157
Figure 14. Federally Owned Land in the SJV 158
Figure 15. Federal Assistance Per Capita for Human Resource by County, FY2000 159
Figure 16. Federal Assistance per Capita for Income Security by County, FY2000 160
Figure 17. Federal Assistance per Capita for National Functions by County, FY2000 161
Figure 18. Allocation of Federal Assistance by ERS Category in California and the SJV, FY2000 162
Figure 19. SJV Land Use/Land Cover 168

Figure 20. Average Sales per Farm by County (2000) 175
Figure 21. Irrigated Farm Acreage by County (2000) 182
Figure 22. Irrigated Land in Acres by County (2002) 183
Figure 23. Average Federal Farm Payments per Farm by County (2002) 185
Figure 24. Number of Migrant Workers on Farms with Hired Labor by County, (2002) 190

List of Tables

Table 1. Appalachian Regional Commission County Economic Fiscal Status, 2004 22
Table 2. Population: United States, California, and Counties of the SJV, 1980-2003 29
Table 3. Population Density: United States, California, and Counties of the SJV, 1980-2003 30
Table 4. Population: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Appalachian Counties of the Appalachian Regional Commission, 1980-2003 31
Table 5. Population Projections: United States, California, and Counties of the SJV, to 2010 and 2020 32
Table 6. Population Projections: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the Appalachian Regional Commission, to 2010 and 2020 33
Table 7. Estimated Percent of the Population That Moved During the Previous Year: United States, California, and Metropolitan Statistical Areas of the SJV, 1989-2004 34
Table 8. Estimates of Where Persons Who Moved During the Previous Year Lived One Year Earlier: United States, California, and Metropolitan Statistical Areas ofthe SJV, 1989-2004 35
Table 9. Percent of the Population Foreign-Born: United States, California, and Counties of the SJV, 1980-2003 36
Table 10. Percent of Population of Hispanic Origin: United States, California, and the Counties of the SJV, 1980-2003 37
Table 11. Percent of the Population Mexican-Born: United States, California, and Counties of the SJV, 1980-2003 38
Table 12. Distribution of Population by Race: United States, California, and the Counties of the SJV, 1980-2003 40
Table 13. Distribution of Population by Gender: United States, California, and the Counties of the SJV, 1980-2003 43
Table 14. Distribution of Population by Age: United States, California, and the Counties of the SJV, 1980-2003 45
Table 15. Portion of the Population Below Poverty: United States, California, and Counties of the SJV, 1980-2003 50
Table 16. Appalachian Regional Commission Poverty Rates, 1980-2000 51
Table 17. Portion of the Population Below Poverty: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 53
Table 18. Percent of Households Receiving Food Stamps: United States, California, and the MSAs of the SJV, 1988-2003 56

Table 19. Public Assistance Income: United States, California, and the Counties of the SJV, 1980-2003 58
Table 20. Public Assistance Income: United States, Kentucky, Virginia, Tennessee, West Virginia,and Central Counties of the ARC, 1980-2003 59
Table 21. Percent of Population Without Health Insurance: United States, California, and the MSAs of the SJV, 1988-2003 63
Table 22. Percent of Population Without Health Insurance: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1988-2003 64
Table 23. Percent of the Population Enrolled in Medicaid: United States, California, and MSAs of the SJV, 1988-2003 65
Table 24. Percent of the Population Enrolled in Medicaid: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1988-2003 66
Table 25. Employment in the United States, California,and the Counties of the SJV, 1980-2003 68
Table 26. Employment in the United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 69
Table 27. Labor Force Participation Rate: United States, California, and the Counties of the SJV, 1980-2003 70
Table 28. Labor Force Participation Rate: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 71
Table 29. Civilian Unemployment Rates: United States, California, and the Counties of the SJV, 1980-2003 72
Table 30. Civilian Unemployment Rates: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 73
Table 31. Per Capita Income: United States, California,and the Counties of the SJV, 1980-2003 79
Table 32. Per Capita Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of theARC, 1980-2003 80
Table 33. Median Family Income: United States, California, and the Counties of the SJV, 1980-2003 81
Table 34. Median Family Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 . 82
Table 35. Average Family Income: United States, California,and the Counties of the SJV, 1980-2003 83
Table 36. Average Family Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the Appalachian Regional Commission (ARC), 1980-2003 84
Table 37. Wage and Salary Income: United States, California, and the Counties of the SJV, 1980-2003 85
Table 38. Wage and Salary Income: United States, Kentucky, Virginia, Tennessee, West Virginia,and Central Counties of the ARC, 1980-2003 . . 86
Table 39. Interest, Dividend, or Net Rental Income: United States, California,and the Counties of the SJV, 1980-2003 87
Table 40. Retirement Income: United States, California, and the Counties of the SJV, 1980-2003 88
Table 41. Social Security Income: United States, California, and the Counties of the SJV, 1980-2003 89

Table 42. Social Security Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 90
Table 43. Supplemental Security Income (SSI): United States, California, and the Counties of the SJV, 2000-2003 91
Table 44. Supplemental Security Income (SSI): United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 2000-2003 92
Table 45. Educational Attainment: United States, California, and Counties of the SJV, 1990-2003 94
Table 46. Educational Attainment: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1990-2003 . 98
Table 47. Per Pupil Amounts for Current Spending of Public Elementary and Secondary School Systems: United States, California, and Counties of the SJV,1992-1993 and 2002-2003 99
Table 48. Percent of Persons Who Speak a Language Other than English at Home: United States, California, and Counties ofthe SJV, 1980-2003 . . 100
Table 49. Per Pupil Amounts for Current Spending of Public Elementary and Secondary School Systems: United States,Kentucky, Tennessee, Virginia, West Virginia, and CentralCounties of the ARC, 1992-1993 and 2002-2003 102
Table 50. Educational Attainment of Persons in the Labor Force Who Moved During the Previous Year: United States, California, and MSAs of the SJV, 1989-2004 103
Table 51. Total Active Doctors Per 1,000 Population: United States, California, and the Counties of the SJV, 1995-2001 108
Table 52. Doctors Engaged in Patient Care Per 1,000 Population: United States, California, and the Counties of the SJV, 1995-2001 109
Table 53. Total Active Doctors Per 1,000 Population: United States, Kentucky, Tennessee, Virginia, West Virginia, and the Central Counties of the ARC, 1995-2001 110
Table 54. Doctors Engaged in Patient Care Per 1,000 Population: United States, Kentucky, Tennessee, Virginia, West Virginia, and the Central Counties of the Appalachian Regional Commission (ARC), 1995-2001 . 111
Table 55. Teen Birth Rates: United States, California, and Counties of the SJV, 1980-2003 112
Table 56. Infant Mortality Rates: United States, California, and Counties of the SJV, 1980-2002 113
Table 57. Age-Adjusted Prevalence of Obesity and Healthy Weight: United States, California, and Counties of the SJV, 1992-2002 114
Table 58. Age-Adjusted Death Rates from Heart Disease: United States, California, and Counties of the SJV, 1980-2002 116
Table 59. Cancer Deaths: Age-Adjusted Death Rates from Cancers: United States, California, and Counties of the SJV, 1980-2002 117
Table 60. Age-Adjusted Death Rates from Stroke: United States, California, and Counties of the SJV, 1980-2002 118
Table 61. Age-Adjusted Death Rates from All Causes of Death: United States, California, and Counties of the SJV, 1980-2002 119
Table 62. Age-Adjusted Prevalence of Diagnosed Diabetes in Adults: United States, California, and Counties of the SJV, 2000-2003 120

Table 63. Diabetes Deaths — Age-Adjusted Death Rates for Diabetes Mellitus: United States, California, and Counties of the SJV, 1980-2002 121
Table 64. Percent of the Population Covered by Medicare: United States, California, and MSAs of the SJV, 1988-2003 123
Table 65. Percent of the Population Covered by Medicare: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1988-2003 124
Table 66. Per Capita Monthly Medicare Expenditures for Aged Beneficiaries in Traditional Medicare: United States, California, and Counties of the SJV, 1990-2003 125
Table 67. Per Capita Monthly Medicare Expenditures for Aged Beneficiaries in Traditional Medicare: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties ofthe ARC, 1990-2003 126
Table 68. Number of Crimes and Crime Rate: United States, California, and Counties of the SJV, 1980-2003 128
Table 69. Number of Crimes and Crime Rate: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003 131
Table 70. Federal Direct Expenditures and Obligations in the SJV, FY2002 . 142
Table 71. Federal Direct Expenditures and Obligations in the Appalachian Regional Commission, FY2002 143
Table 72. Federal Direct Expenditures and Obligations in the SJV, FY2003 . 144
Table 73. Federal Direct Expenditures and Obligations in the Tennessee Valley Authority Area FY2003 145
Table 74. Per Capita Federal Funds By ERS Function for the SJV, FY2000 . . 151
Table 75. Per Capita Federal Funds for Appalachia by ERS Function and Region, FY2000 152
Table 76. Farms by Size, 2002 173
Table 77. Market Value of Agricultural Product Sales, 2002 174
Table 78. Leading Commodities for Gross Value of Agricultural Production by SJV and Adjacent Counties, 2003 176
Table 79. SJV Commodity Rank and Leading Counties by Gross Value of Agricultural Production, 2003 178
Table 80. SJV Irrigated Land, 2002 181
Table 81. SJV Federal Farm Payments, 2002 184
Table 82. SJV Hired Farm Labor, 2002 186
Table 83. SJV Farm Workers by Days Worked — Less than 150 days, 2002 . 187
Table 84. SJV Farm Workers by Days Worked — 150 Days or More, 2002 . . 188
Table 85. SJV Migrant Farm Labor Valley, 2002 189
Table 86. Annual Employment and Average Annual Pay of the 20 Largest Industries, United States, 1990-2003 198
Table 87. Annual Employment and Pay of the 20 Largest Industries, California, 1990-2003 199
Table 88. Annual Employment and Pay of the 20 Largest Industries, Fresno County, 1990-2003 200
Table 89. Annual Employment and Pay of the 20 Largest Industries, Kern County, 1990-2003 201
Table 90. Annual Employment and Pay of the 20 Largest Industries, Kings County, 1990-2003 202

Table 91. Annual Employment and Pay of the 20 Largest Industries, Madera County, 1990-2003 203
Table 92. Annual Employment and Pay of the 20 Largest Industries, Merced County, 1990-2003 204
Table 93. Annual Employment and Pay of the 20 Largest Industries, San Joaquin County, 1990-2003 205
Table 94. Annual Employment and Pay of the 20 Largest Industries, Stanislaus County, 1990-2003 206
Table 95. Annual Employment and Pay of the 20 Largest Industries, Tulare County, 1990-2003 207
Table 96. Annual Employment and Pay of the 20 Largest Industries, Mariposa County, 1990-2003 208
Table 97. Annual Employment and Pay of the 20 Largest Industries, Tuolumne County, 1990-2003 209
Table 98. Percent of Workers Who Usually Worked Full-Timein the Previous Year: United States, California, and the Counties of the SJV, 1980-2003 211
Table 99. Distribution of Employed Persons by the Number of Weeks Worked in the Previous Year: United States, California, and the Counties of the SJV, 1980-2003 213
Table 100. Class of Worker: United States, California,and the Counties of the SJV, 1980-2003 216
Table 101. Means of Transportation to Work: United States, California, and Counties of the SJV, 1980-2003 219
Table 102. Vehicles Available Per Household: United States, California, and Counties of the SJV, 1990-2003 220
Table 103. Ambulatory Health Care Services, 2002 225
Table 104. Bakersfield MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results 228
Table 105. Fresno MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results 231
Table 106. Modesto MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results 234
Table 107. Stockton-Lodi MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results 237
Table 108. Visalia-Tulare-Porterville MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results 240
Table 109. Medical Instrument Supply/Equipment, 2002 243
Table 110. Federal-Aid Highway Obligations: SJV — California — United States 263
Table 111. Federal Direct Expenditures and Obligations for Fresno County, FY2003 292
Table 112. Federal Direct Expenditures and Obligations for Kern County, FY2003 301
Table 113. Federal Direct Expenditures and Obligations for Kings County, FY2003 308

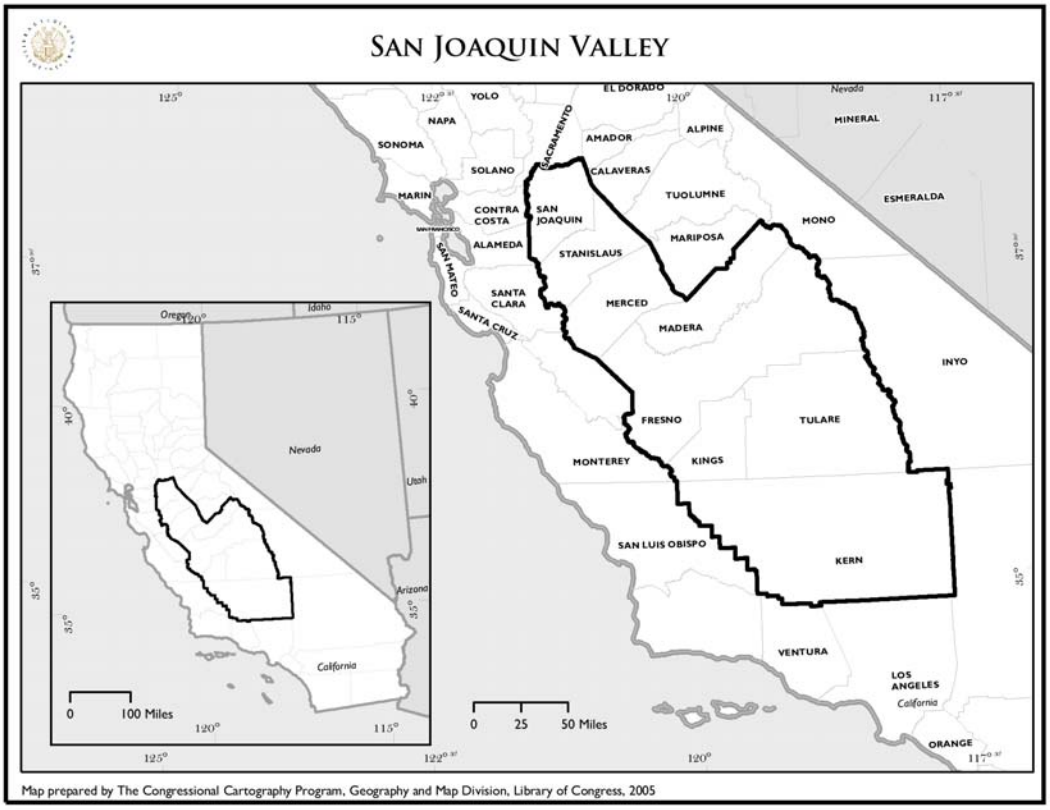
Table 114. Federal Direct Expenditures and Obligations for Madera County, FY2003 313
Table 115. Federal Direct Expenditures and Obligations for Merced County, FY2003 319
Table 116. Federal Direct Expenditures and Obligations for San Joaquin County, FY2003 325
Table 117. Federal Direct Expenditures and Obligations for Stanislaus County, FY2003 332
Table 118. Federal Direct Expenditures and Obligations for Tulare County, FY2003 338
Table 119. Federal Direct Expenditures and Obligations for Mariposa County, FY2003 345
Table 120. Federal Direct Expenditures and Obligations for Tuolumne County, FY2003 349

California's San Joaquin Valley: A Region in Transition

Chapter 1 — An Overview of the San Joaquin Valley

Introduction. The San Joaquin Valley (SJV), an eight-county region extending 250 miles from Stockton in the north to Bakersfield in the south (**Figure 1**), is a rapidly growing area that is also a severely economically depressed region suffering from high poverty, unemployment, and other adverse social conditions. The 27,280 square mile SJV, part of California's Central Valley, is also home to 5 of the 10 most agriculturally productive counties in the United States, as measured by value of total annual sales. In addition to its socioeconomic condition, the SJV region faces significant environmental and natural resource challenges. A substantial body of empirical research over the past 20 years has explored the socioeconomic and environmental issues facing the SJV, with particular attention to social welfare, agriculture, air, and water quality issues.

Figure 1. The San Joaquin Valley of California



This report documents the basis of current socioeconomic and environmental concerns in the SJV and assesses the role of federal assistance to the cities, counties, residents, and businesses of the SJV. The report also explores the extent to which the SJV shares similarities with and differs from other economically depressed areas in the United States. It reviews the role of federal assistance in the SJV relative to the role of federal assistance in Appalachia, specifically federal funding to the Appalachian Regional Commission (ARC) area. The ARC is a federal agency created in 1965. Its jurisdiction is a 410-county region spread across 13 states from Alabama to New York.

The report's major analytical focus is the 8 counties that compose the SJV: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Particular data in the report also focus on the SJV's Metropolitan Statistical Areas (MSAs): Stockton-Lodi, Bakersfield, Fresno, Madera, Modesto, and Visalia-Porterville. A limited, but more detailed comparison is also developed with the Central Appalachian subregion, a 68-county area in Tennessee, Virginia, Kentucky, and West Virginia delimited by the USDA's Economic Research Service and based on Bogue and Beale's *Economic Areas of the United States*.[1] Two rural counties adjacent to the SJV, Mariposa and Tuolumne, are also examined in the report to provide a further comparison and contrast to the socioeconomic characteristics of the SJV.

Data discussed in the text occasionally make reference to the Greater Central Valley of which the SJV composes the southern portion. The Great Valley Center in Modesto, a regional research institute, divides the Great Central Valley into 3 subregions: the North Valley encompasses 7 counties (Shasta, Tehama, Glenn, Colusa, Butte, Yuba, and Sutter); the Sacramento Region has 4 counties (Yolo, Sacramento, Place, and El Dorado); and the San Joaquin Valley. The North Valley is less urbanized and less developed. The Sacramento Region has had the most extensive development through its linkages to San Francisco.[2]

How federal assistance in the SJV and Appalachia is distributed among various categories and their per capita rates of expenditure are also a focus of the report. A key consideration is how federal assistance is currently distributed in the SJV and how it differs from current federal expenditures in Appalachia.

The geography of global economic activity in 2005 is, in significant ways, quite different from that of 25 years ago. An increasingly complex set of relationships between local and global scales of economic activity has implications for SJV labor markets, household consumption, the formation of growth coalitions, technological innovation and growth, residential and transportation patterns, and human capital issues. Federal assistance has been important in each of these policy issues in the past and is likely continue as an important factor in future development and change in the SJV. Concern with the challenges facing the SJV has led to efforts there to

---

[1] Bogue, Donald J. and Calvin Beale. *Economic Areas of the United States*. New York: Free Press. 1961.

[2] Great Valley Center. *The State of the Great Central Valley of California: Assessing the Region Via Indicators*. Modesto, California. July, 1999.

begin considering a wide range of issues from a regional perspective. The SJV now has federally recognized regional status: a federal interagency task force on the economic development of the Central SJV was created in 2000 by Executive Order.[3]

This chapter reviews the history of regional approaches to socioeconomic development and discusses the federal role in the creation and support of specific regional development commissions: the Tennessee Valley Authority (TVA), the ARC, the Delta Regional Authority, the U.S.-Mexico Border Health Commission, the Denali Commission, and the Northern Great Plains Regional Authority. Each of these federally authorized commissions targeted federal funds to development issues specific to their geographic regions.

This section selectively surveys contemporary socioeconomic research on the SJV, drawing on an extensive bibliography of research in **Appendix A**.

Contemporary Research on the SJV

In his 1987 Carl Sauer Memorial Lecture, Berkeley geographer James J. Parsons argued that there were at least three categorical ways of approaching the SJV.[4] First, and most common, was to ignore the SJV or to view it as irrelevant to the largely urbanized character of the state. He noted that in a mid-1980s publication listing the 100 best places in California the refurbished Capitol building in Sacramento was the only attraction from the entire Central Valley to make the list. A second way of considering the SJV was as a symbol "of capitalism gone rampant, of all that is bad about profit-based, large-scale, labor intensive irrigated agriculture." Here, Parsons referred to Frank Norris's *Octopus*, a story of the role of the railroad in what is today, Kings County. John Steinbeck's *The Grapes of Wrath* and Carey McWilliams *Factories in the Field* also represented a way of seeing the Valley focused largely on the social and human effects of agricultural production in the 1930s. In a similar vein, news and stories of contemporary industrial agriculture in the Valley reinforce this particular dimension of the SJV. For Parsons, a noted cultural geographer, a third way of looking at the Valley was actually to see and appreciate the Valley as the

---

[3] Executive Order 13173: *Interagency Task Force on the Economic Development of the Central SJV*, October 25, 2000. Executive Order 13359, October 4, 2004, amended the original Order to designate the Secretary of Housing and Urban Development as the Chair of the task force.

[4] Parsons, James J.. *A Geographer Looks at the SJV*. 1987 Carl Sauer Memorial Lecture. [Http://geography.berkeley.edu/ProjectsResources/]
Publications/Parsons_SauerLect.html. While agriculture and the SJV are practically synonymous, oil production was also an important factor in the development of the SJV. At the turn of the 20th century, the Kern River Field was producing 70% of California's oil, and California was the country's leading oil producer. Today, Kern County produces 10% of the United States oil, making it the leading oil producing county in the United States. See Greater Bakersfield Chamber of Commerce, Kern County Petroleum. January 2002. [http://www.bakersfieldchamber.org/community.asp].

result of a consciously built and cultivated cultural landscape that has made California agriculture a modern "wonder of the world."[5]

Substantial research over the past decade has focused on the SJV in an effort to describe, analyze, and plan for the challenges facing the region. Population growth and change, global changes in the organization of agriculture, pressures on natural resources stemming from population growth and agricultural production, human resource concerns, environmental issues, employment, growth management concerns, housing, and transportation represent some of the policy issues on which researchers have focused particular attention. The general economic growth and development in the Central Valley as a whole between 1999-2004 has not significantly changed much of the basic economic distress of the region. Even with an increase in income over that period, the Central Valley region may have lost ground because incomes in the state grew faster than they did in the Valley. Between 1997 and 2002, Central Valley's per capita income grew by 19% while the state's per capita income rose 25%.[6] An overview of some of the most recent research and key findings is presented below.

Demographic Issues and the Role of Farmworkers. Although agriculture is perhaps the most significant socioeconomic feature of the SJV today, the SJV is undergoing changes that suggest a more diversified economic base over the next 20 years will be necessary to support the region's growth. The Bureau of the Census, for example, projects the population of the San Joaquin to grow by 39% from 2003 to 2020, with some counties (e.g., Merced and San Joaquin) projected to grow by more than 55%, meaning that 1.4 million more people are projected to live in the SJV by 2020.[7] In contrast,

The SJV Region at a Glance — 2000

Counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare
Total area: 27,280 square miles; 17% of the land area of California
Total population: 3.3 million; 10% of California's population
Ethnic composition: 53% white, 34% Hispanic, 8% Asian/Pacific Islander, 4% African American, and 1% Native American
Age distribution: 0-9 years old, 18%; 10-19 years old, 16%; 20-44 years old, 36%; 45-64 years old, 19%; 65+ 10%
Adult educational attainment: 66% are high school graduates; 14% have bachelor's degree

Source: Great Valley Center. *The Economic Future of the SJV: Growing a Prosperous Economy that Benefits People and Place.* 2000

[5] Parsons, 1987. Op.Cit., p. 4.

[6] Great Valley Center. *Assessing the Region Via Indicators: The Economy, 1994-2004*. January. Modesto, California. 2005.

[7] Projections of U.S. population growth are from the U.S. Department of Commerce, Bureau of the Census, *U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin*, available

(continued...)

the state is projected to grow approximately 24% over that period, with the United States growing about 15%. The SJV currently attracts a large proportion of lower-skilled workers from across the state as well as from significant international migration. At the same time, the South SJV is also losing its higher-skilled workers.[8] Between 1995 and 2000, these counties had a net migration increase in the number of adults without high school diplomas and a net decrease of college graduates.[9]

Along with the Sacramento metro region and the Riverside-San Bernardino region, the SJV was among the three fastest growing regions in the state, accounting for nearly 4 of every 10 new residents of the state during the 1990s.[10] While natural increase was the largest component of population change in the Valley during the 1990s, international migration was also a significant source of the San Joaquin's growth, as was migration from coastal areas where housing costs rose significantly during the decade. Between 1995 and 2000, two of every three international migrants to the SJV were Latino.[11] During that same period, the South SJV experienced net domestic migration losses for every group except African Americans. More than half of domestic out-migrants were white.

The high rate of Latino immigration presents several issues. Latino immigrants tend to: be younger than the state average, have lower high school graduation rates, lack fluency in English, be disproportionately low-skilled, have higher birth rates and related family sizes, and higher rates of family poverty.[12] In some SJV communities, as many as two-thirds of the residents have not finished high school and half of the

---

[7] (...continued)
at [http://www.census.gov/population/www/projections/popproj.html]. Projections for California are from the State of California, Department of Finance, *Population Projections by Race/Ethnicity for California and Its Counties 2000-2050*, Sacramento, California, May 2004, available at [http://www.dof.ca.gov/html/demograp/dru_publications/projections/p1.htm].

[8] In a study of the Central Valley's migration patterns, the Southern SJV (Madera, Fresno, Kings, Kern, and Tulare counties) was distinguished from the Northern SJV (San Joaquin, Stanislaus, and Merced counties). Johnson, Hans P. and Hayes, Joseph M. *The Central Valley at a Crossroads: Migration and Its Implications*. Report. Public Policy Institute of California, San Francisco, CA. November. 2004.
[http://www.ppic.org/content/pubs/R_1104HJR.pdf]

[9] Ibid., p.47.

[10] Johnson, Hans P. A State of Diversity: Demographic Trends in California's Regions. *California Counts: Population trends and Profiles, Vol.3, No.5, May*. Report. Public Policy Institute of California, San Francisco, CA. November. 2002.
[http://www.ppic.org/content/pubs/CC_502HJCC.pdf]

[11] Ibid.

[12] Reed, Deborah, Laura E. Hill, Christopher Jepsen, and Hans P. Johnson. 2005. *Educational Progress Across Immigrant Generations in California*. Public Policy Institute of California, San Francisco. September. [http://www.ppic.org/content/pubs/R_905DRR.pdf]; Johnson, Hans P. 2001. "The Demography of California Immigrants." Paper based on testimony before the Little Hoover Commission Hearing on Immigrant Integration, March 21, 2001. Public Policy Institute of California, San Francisco. March.

households with children under 18 have incomes below the poverty line. Low-skilled, part-time, seasonal employment is often the norm for many of these immigrants. Labor intensive agricultural production in the fruit, vegetable, and horticultural sectors is often the most viable source of employment. As hired farm labor jobs decline, educating and training the immigrant community for higher-wage jobs will present the SJV with considerable challenge.[13]

Predicting future population is a complicated exercise. Domestic and international immigration, racial and ethnic composition of the population, and birth rates of different social groups are a complex set of variables that influence population growth rates. Birth rates are also influenced by personal characteristics such as educational attainment, marital status, and income level. As educational attainment and income rise, there tends to be a decrease in average birth rate. Third and fourth generation immigrants, for example, tend to have lower birth rates on average than earlier generations. A demographic analysis by the Public Policy Institute of California concluded that, while second and third-generation Californians do have lower birth rates than their earlier relatives, the declines are the result of changing educational levels, income, and other personal characteristics.[14] These personal characteristics, rather than the particular immigrant generation, had significant direct effects on birth rates.

Lower costs in the SJV compared to the state have attracted businesses to the region over the past decade. Many businesses are attracted by the low-cost labor and the relatively low land prices. Between 1990 and 2000, however, overall job growth still lagged behind population growth in the SJV.[15] Unemployment has been a persistent problem in the Valley, typically at a rate nearly twice the national average and significantly higher than the state average. In 2000, the SJV had an unemployment rate of nearly 12%, while the U.S. and California averages were 5.8% and 7% respectively. Individual counties, (e.g., Madera and Merced), had even higher unemployment rates. Since 1980, the unemployment rate for the Valley has ranged from 9.5%-12% (See **Table 29**, Chapter 2). Agriculture remains the major economic engine of the regional economy. The agricultural sector offers much seasonal employment, but pays relatively low average annual wages. For example, in Parlier, a small community in Fresno County, 29% of the 4,511 labor force was employed in agriculture in 2000. Median family income there was $24,300 and 33% of the families in the community fell below the poverty line.[16]

---

[13] Between 1992 and 2002, hired farm labor in the SJV declined 35.6%, from 377,853 jobs in 1992 to 243,079 jobs in 2002. National Agricultural Statistics Service, U.S. Census of Agriculture 1992, 1997, 2002.

[14] Hill, Laura E. and Hans P. Johnson. *Understanding the Future of Californians' Fertility: The Role of Immigrants.* Public Policy Institute of California, San Francisco, CA. April, 2002. [http://www.ppic.org/content/pubs/R_402LHR.pdf]

[15] Johnson, Hans P. 2002. Op.Cit, p.8

[16] Farm Foundation. *Immigrants Change the Face of Rural America*. Issue Report, January, 2005.

The proportion of the population living in poverty in the SJV is high, nearly 22% in 2002.[17] Rural poverty in particular in California may be re-created through the expansion of low-wage, immigrant-intensive agriculture. The globalization of agricultural production, particularly as it is affected by the North American Free Trade Agreement (NAFTA) is considered by many to be a significant factor in the structure of California agriculture. Poverty in rural Mexico, the demand for low-wage labor in California's fruit, vegetable, and horticultural sectors, and the existence of family and village networks that grew from a history of migration to the United States help sustain a stream of immigration to the fields of the SJV. This combination of "push," "pull," and "network" effects appears to make both immigration and the expansion of farm jobs on which immigrants depend self-perpetuating.[18]

Agricultural Immigration. Immigration plays a significant role in the demographic characteristics of the SJV and California, and this is likely to continue. Since 1995, the Central Valley as a whole has received substantially more migrants from other parts of California than it sends to the rest of California. The counties of Madera, Fresno, Kings, Tulare, and Kern have received the most international migrants of any area of the Central Valley.[19] Economically dominated by industrial agriculture, these counties also are characterized by very high rates of poverty among immigrants. This presents challenges to the region's social services, especially for health care and education providers. The growth in immigration in rural California is generally regarded as a phenomenon directly related to the changing structure of agriculture.[20] Greater integration of farms under the control of agribusiness, the increased use of immigrant farm labor hired through contractors, and a continuing shift from owner-operated farms to hired-labor corporations characterize contemporary agricultural production in the SJV.[21]

Because the economic structure of the rural sector in general is not well diversified, newly arrived immigrants find very few opportunities outside the agricultural sector. Immigrants often crowd into rural *colonias* — incorporated towns resembling overgrown labor camps — whose population during the harvest season often surges to several times their normal size. In 1997, California rural *colonias* comprised 7 of the 20 U.S. cities in which the highest percentage of people in

---

[17] Reed, Deborah . *California Counts: Recent Trends in Income and Poverty*. Public Policy Institute of California, San Francisco, CA. February, 2004. [http://www.ppic.org/content/pubs/CC_204DRCC.pdf]

[18] Ibid.

[19] Johnson, Hans and Joseph Hayes. *The Central Valley at a Crossroads: Migration and Its Implications*. Public Policy Institute. San Francisco. November 2004.

[20] See Krissman, Fred. "Cycles of poverty in rural California towns: Comparing McFarland and Farmersville in the southern SJV. Paper presented at the conference, Immigration and the Changing Face of Rural California. Asilomar, California, June12-14, 1995; Palerm, Juan V. Farm Labor Needs and Farm Workers in California, 1970-1989. California Agricultural Studies Report #91-2. University of California-Santa Barbara. 1991.

[21] These changes in the structure of agriculture are explored in greater detail in the section of this report concerning the SJV's economic structure.

concentrated poverty were foreign-born.[22] Unlike the small-scale farming operations of the Midwest, agriculture in California has long been dominated by large operations relying on a mobile labor force. Agricultural production in the SJV is, accordingly, at the center of changes in the structure of agriculture; continuing immigration into the SJV reflects these changing patterns.

Since the early 1990s, there has been a shift away from migrant labor towards resident-based labor. Unlike many other farming regions of the United States, the extended growing season in the SJV permits many workers the opportunity for year-round farm labor. While harvesting may be seasonal, the great variety of crops in the region makes it possible for farm workers to reside in one area and find work for much of the year. A report on farm workers in Kern County, cites a 1995 Kern County Consolidated Plan that counted 10,240 resident farm workers and 19,570 migrant workers during peak season.[23] This study noted that the number of permanent farm workers had steadily increased and is expected to continue. Some permanent residents with established networks may move out of farm labor and into industries such as food packing, processing, transportation, or retail trade. Other residents may provide food or housing services to newly arrived farm workers. The young, Hispanic migrant workers, especially those without established networks in the communities, continue to meet much of the demand for low-skilled labor intensive agriculture.[24] If present trends continue, the newly arrived will become residents and move out of farm labor to provide opportunities for yet another wave of agricultural immigrants. For the communities where many farm workers reside, however, low farmworker earnings limit the potential for significant economic growth.

Because agriculture in the SJV is so reliant on low-wage, low-skilled farm labor, and because low-wage, low-skilled labor is attracted to the SJV for employment in agriculture, some observers believe that the region could be caught in a vicious

---

[22] Taylor, J. Edward, Philip L. Martin, Michael Fix. *Poverty Amid Prosperity: Immigration and the Changing Face of Rural California.* Urban Institute Press, Washington, D.C. 1997.

[23] Housing Assistance Council. *Taking Stock: Rural People, Poverty, and Housing at the Turn of the 21st Century*. December 2002.

[24] Beginning in the 1990s, many migrants to Kern County came from areas of Mexico not traditionally sources of agricultural labor. The Mixtecs, an indigenous group from Oaxaca, with a distinctive language and culture, are recent settlers. They, along with migrants from Central America, do not have the support networks that traditional Mexican immigrants have. Housing Assistance Council. 2002. Op. Cit. According to the 2001-2002 National Agricultural Workers Survey, Mexico-born crop workers were from almost every state of their native country. The largest share (46%) were from the traditional sending states of west central Mexico: Guanajuato, Jalisco, and Michoacan. However, an increasing share were from non-traditional states. The share from the southern part of Mexico, comprising the states of Guerrero, Oaxaca, Chiapas, Puebla, Morelos and Veracruz, doubled from nine percent in 1993-1994 to 19% in 2001-2002. See U.S. Department of Labor, *National Agricultural Workers Survey 2001 - 2002 A Demographic and Employment Profile of United States Farm Workers*. March, 2005. [http://www.doleta.gov/agworker/report9/toc.cfm]

[25] Taylor, J. Edward, Philip L. Martin, Michael Fix. 1997. Op. Cit.

[26] Housing Assistance Council. 2002, Op. Cit., p.77.

[27] Schultz, E.J. "What people earn." *Fresno Bee*. November 7, 2004.

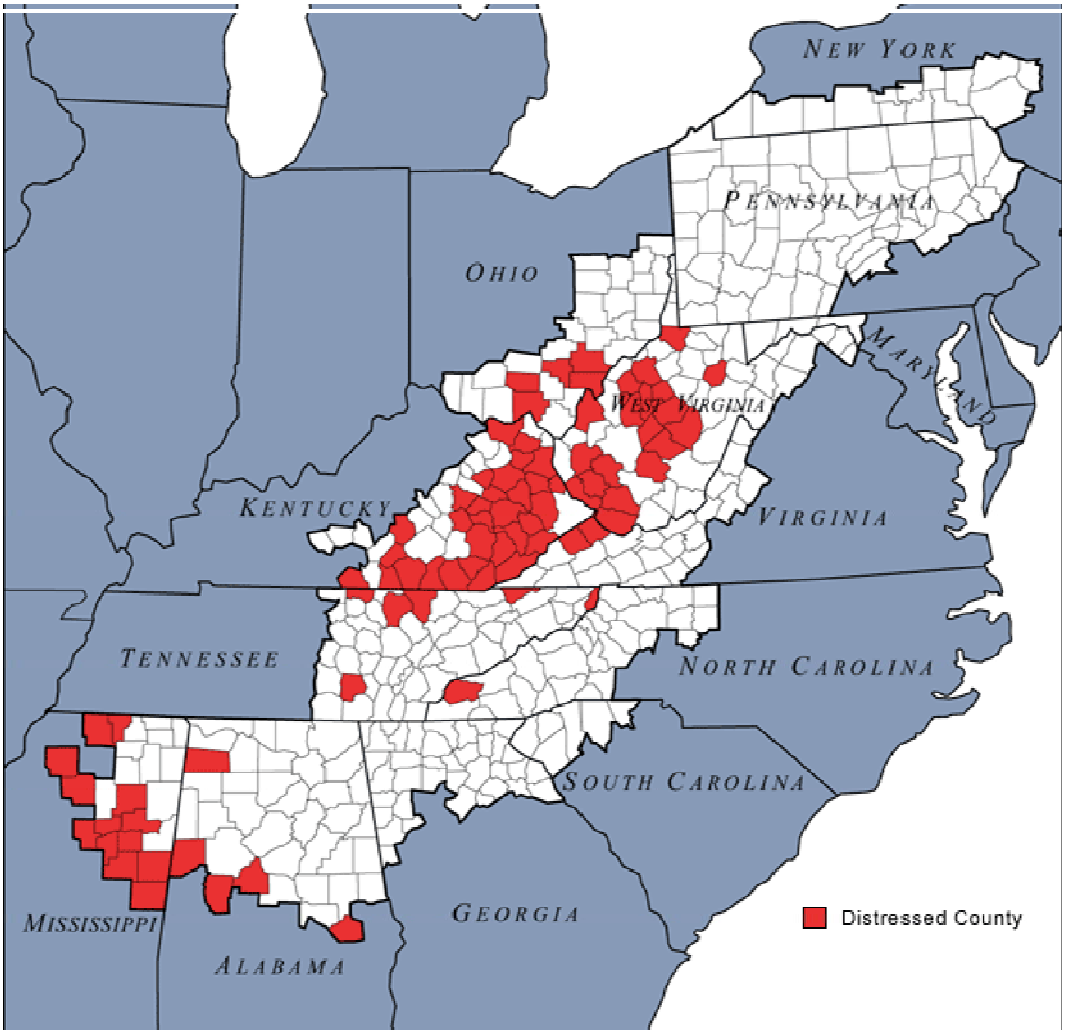
[28] The Fresno Regional Jobs Initiative (RJI), formed in 2001, is working to create 30,000 jobs in the Fresno Metropolitan Statistical

	Three-Year Average Unemployment Rate 1999-2001(%)	Per Capita Market Income 2000[a]	Poverty Rate 2000 (%)	Unemployment Rate, Percent of U.S. Average	Per Capita Market Income, Percent of U.S. Average	Poverty Rate, Percent of U.S. Average
North Carolina	4.1	$23,311	12.3	95.2	90.8	99.2
Appalachian North Carolina	3.9	$21,548	11.7	90.3	83.9	94.7
Ohio	4.2	$23,974	10.6	97.4	93.4	85.6
Appalachian Ohio	5.7	$17,345	13.6	132.3	67.6	109.8
Pennsylvania	4.4	$24,795	11.0	102.4	96.6	88.7
Appalachian Pennsylvania	5.0	$21,418	11.4	114.9	83.4	92.1
South Carolina	4.6	$20,370	14.1	105.8	79.3	114.0
Appalachian South Carolina	3.6	$21,893	11.7	82.8	85.3	94.7
Tennessee	4.1	$21,866	13.5	95.7	85.2	108.9
Appalachian Tennessee	4.2	$19,050	14.2	98.1	74.2	114.4
Virginia	2.8	$28,198	9.6	65.2	109.8	77.5
Appalachian Virginia	5.3	$15,939	15.7	122.3	62.1	127.1
West Virginia	5.7	$16,772	17.9	131.1	65.3	144.6
Appalachian West Virginia	5.7	$16,772	17.9	131.1	65.3	144.6

Source: Appalachian Regional Commission

a. Per capita market income (PCMI) is a measure of an area's total personal income, less government transfer payments, divided by the resident population of the area. The percent of the U.S. average is computed by dividing the county per capita market income by the national average and multiplying by 100.

Figure 2. The Appalachian Regional Commission Area and its Distressed Counties



Prepared by the Appalachian Regional Commission

Data Sources:
Unemployment data: U.S. Department of Labor, Bureau of Labor Statistics, 2000--2002
Income data: U.S. Department of Commerce, Bureau of Economic Analysis, 2001
Poverty data: U.S. Department of Commerce, Bureau of the Census, 2000

Central Appalachia, as defined by the U.S. Department of Agriculture's Economic Research Service, is a 68 county area in parts of Virginia (7 counties), Tennessee (9 counties), Kentucky (43 counties), and West Virginia (9 counties). This particular subregion of Appalachia was used as a case comparison to the SJV across several socioeconomic variables because 45 (66%) of Central Appalachia's

68 counties are Distressed counties.[46] Because the counties of this subregion are among the most impoverished of the ARC area, we regard the comparison as a more reliable contrast to the SJV. The data presented in this chapter are drawn from public sources, (e.g., Bureau of Labor Statistics, Bureau of Economic Analysis, Bureau of the Census, Census of Agriculture, and ARC). A list of sources and websites can be found in **Appendix B** as well as in notes accompanying individual tables. In some cases, the data were not available because they were not collected at the county level, or could not be accurately aggregated across the 68-county region. In those cases, we have used state data as a comparative point. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census.

Socioeconomic Indicators in the SJV and Appalachia, 1980-2003

A previous section provided an introduction and overview of contemporary research on the policy issues facing the SJV. Rapid population growth, high rates of immigration, low per capita and household income, high unemployment, low educational achievement, weak economic diversity outside production agriculture, and urban sprawl are among the central concerns of the SJV. While other regions in the United States reveal similar distress, (e.g., the Rio Grande area, the Delta South, and Native American reservations in the Great Plains), the SJV is not an area that first comes to mind as one of concentrated poverty. This section of the report provides a detailed examination of the socioeconomic conditions in the SJV over the past 23 years. These indicators reveal the area as one lagging significantly behind California, the United States, and, across many variables, the Central Appalachian region as well. Statistics are presented in tables below based on each of the past three decennial censuses, 1980, 1990, 2000, and, when available, for 2003-2004. Data include indicators on labor and employment, poverty and income, disease prevalence, educational attainment, and crime. For particular variables, geographic information system maps of these data were created to show the graphic contrast between the SJV counties and other California counties.

County and Regional Population Characteristics. The SJV population is growing rapidly. In 2003, over 3.5 million people resided in the SJV, an increase of 1.5 million since 1980, a population increase of 75.0%. Each of the SJV counties exceeded the national rate of population growth between 1980-1990, 1990-2000, and 1990-2003 (**Table 2**). While California has also had relatively higher population

---

[46] The ARC has used the distressed county designation for almost twenty years to identify counties with the most structurally disadvantaged economies. Up to 30% of ARC's Area Development Funds are targeted to distressed counties through allocation of ARC grants to distressed counties, requiring only a 20% match from the state and/or local government, which is lower than the state/local match required from non-distressed counties. From 1983, the inception of the distressed counties program, through 1999 the ARC provided $266 million dollars in single-county grants to distressed counties. This sum constituted 42% of such single-county grants awarded across Appalachia. See Wood, Lawrence E. and Gregory A. Bischak. *Progress and Challenges in Reducing Economic Distress in Appalachia: An analysis of National and Regional Trends Since 1960.* Washington, DC: ARC, 2000.

growth rates than the national average, each SJV county substantially outpaced the growth of California between 1980-2000. Madera County alone more than doubled its population between 1980 and 2003. The adjacent counties of Mariposa and Tuolumne also have had generally higher growth rates than either California or the United States from 1980-2000. San Joaquin and Stanislaus counties now have population densities considerably higher than the California average (**Table 3**). With the high proportion of federal land in Mariposa and Tuolumne, these counties have had relatively stable population densities compared to the SJV.

In marked contrast, Central Appalachia's population declined 5.7% between 1980-1990, losing 52,000 people during that decade. The SJV grew by 34% in that decade. Between 1990-2003, Central Appalachia grew by less than 3%, effectively recovering about 1,000 persons more than it lost the previous decade. This rate is considerably less than the Appalachian states as a whole, except for West Virginia, which grew by just under 1% (**Table 4**).

The SJV population is projected to grow by 14.3% between 2003 and 2010 compared to projected growth rates of 10.6% for California and 6.2% for the United States (**Table 5**). Projected population growth for the SJV between 2003 and 2020 is 39.0% compared to a growth rate of 15.5% for the United States and 23.6% for California. Population growth between 2003-2020 for Mariposa and Tuolumne counties is projected to be about the same as the national average but less than California. **Table 6** shows that Central Appalachia is projected to grow only 5.5% between 2003 and 2020 and 2.3% between 2003-2010. If these projections prove accurate, Central Appalachia will have a net gain of 98,000 people by 2020 and the SJV a gain of 398,000. With the exception of West Virginia, Central Appalachia is projected to grow between one-third and one-fourth below its respective state population growth.

As noted earlier, immigration has been a major source of the population growth in the SJV. As **Table 7 and Table 8** show, California and the SJV's towns and cities have highly mobile populations, although they are not substantially different from the United States as a whole, except for the fact that in the United States as a whole, a much larger percent of those who moved in the previous year came from a different state. For the 2002 through 2004 period, over 30% of the SJV metropolitan population who moved during the previous year either lived in another California county (16.1%), lived in a different state (8.0%), or lived abroad (6.7%). Most who moved in the previous year, however, moved within the same county.

Nearly 20% of the SJV's population in 2000 was foreign born (**Table 9**). Almost one-quarter of the population of Merced was foreign born. In 1980, less than 14% were foreign born in that county. While these are relatively high percentages compared to the United States percent of population that was foreign-born (11.1%), the SJV had a lower percentage of foreign-born than California (26.2%). Mariposa and Tuolumne counties had 2.8% and 3.2% respectively who were foreign-born. Whether foreign-born or not, in 2000 nearly 40% of the SJV population identified itself as Hispanic in origin, compared to 32.4% of California and 12.5% of the United States (**Table 10**). I 2003, over 54% in Tulare County and 46% in Fresno County identified themselves as Hispanic in origin. Since 1980, all the SJV counties have increased the proportion of their population who identified themselves as Hispanic

in origin. In 1980, less than 6% of the SJV population was Mexican-born. By 2000, 13.5% were Mexican-born (**Table 11**). Each of the SJV counties have more than doubled the percentage of their Mexican-born populations since 1980. This is true of California as well. The United States more than tripled its Mexican-born population between 1980 and 2003. **Figure 3** shows the percent change in the Mexican-born population by California county, 1990-2000.

Three additional tables show the distribution of the SJV population by race, sex, and age, 1980-2003. From 1980-2003, the proportion of those in the SJV who identified themselves as either Black, American Indian, or Native Alaskan have remained small and stable (**Table 12**). Asian and Pacific Islanders more than doubled from 2.9% in 1980 to 6.3% in 2000. Most of the increases in Asian and Pacific Islanders were in Fresno, Merced, and San Joaquin counties with Fresno County seeing the largest increase between 1980 and 2000 (63%) followed by San Joaquin County (46%). The U.S. Census category of "Other" increased significantly in the SJV, from 14% to over 23%. The proportion of the SJV population identifying themselves as White declined from 77.6% in 1980 to 59.1% in 2000. Declines in the proportion of those identifying themselves as White were evident in half of the SJV counties between 1980 and 2000. In 2003, Fresno, Kern, San Joaquin, Stanislaus, and Tulare counties registered increases in the proportion of the population who identified themselves as White, as did California. Mariposa and Tuolumne counties have the lowest proportions of their population who identify themselves as Black, Native American Indian and Native Alaskan, Asian and Pacific Islanders, and Other. Their population distribution by race was relatively stable between 1980 and 2000.

The distribution of the SJV population by sex in 2000 showed a slight male bias, 50.2% versus 49.8% (**Table 13**). The population distribution of males and females in California is 49.6% and 50.4% respectively. The male bias is very pronounced in Kings county with 57.4% male and 42.6% female. Tuolumne County also had a slight distributional bias toward males (52.6%). The sex distribution for the United States was, like California, biased toward females, 48.9% males to 51.1% female.

The SJV population is a relatively young population compared to many areas of the United States, especially most rural areas. In 2000, the proportion of the U.S. population 65 and older was 12.4%, while in California, that population stratum was 10.6% (**Table 14**). In the SJV, the proportion aged 65 and older was 9.9%. In Kings County, the 65 and older accounted for just 7.5% of the population. As **Table 13** showed, Kings County also has a high male proportion. That characteristic, along with the age distribution shown in **Table 14,** suggest the county has a relatively high proportion of men, especially in the prime labor cohort of 25-54 years old. The 25-54 year old cohort in Kings County is the largest in the SJV. While the proportion of this cohort is the largest in each SJV counties, the proportion is somewhat lower than that of California, except for Kings County. Mariposa and Tuolumne counties, in contrast, have very high proportions of their population 65 and older, substantially higher than the proportions in the United States and California.

Appalachia's Demographic Structure. In 2000, approximately 31% of U.S. residents identified themselves as a member of a minority group. In the ARC region, however, racial and ethnic minorities comprised only about 12% of the

population. Of the 2.8 million minority Appalachians, 66% (1.8 million) were non-Hispanic black, with Hispanics making up another sixth (465,000).[47] In the ARC-defined Central Appalachian area, only 4% identified themselves as minorities. Southern Appalachia, with a 19% minority population, was the most diverse region of the ARC.

In-migration has been a key factor in the ARC's increase in racial and ethnic diversity. More than half of Appalachia's Hispanic and Asian residents and one-third of its American Indians and multiracial persons had moved since 1995-either into the region or from another Appalachian county. Among Appalachia's black population, just under one-fifth had migrated from another county between 1995 and 2000-only slightly higher than the percentage for non-Hispanic whites.[48]

Appalachia has a higher proportion of elderly than either the SJV or the United States as a whole. In 2000, 14.3% of Appalachian residents were ages 65 and over, compared with 12.4% of all U.S. residents. In the SJV, just under 10% of the population in 2000 was age 65 or older. Northern Appalachia had the oldest population among the ARC subregions, with 16% ages 65 and over. West Virginia, all of which is in the ARC area, ranked third among states in 2000 in the percentage of its population ages 65 and over; only Florida ranked higher.[49] The "youth deficit" in the Appalachian region is fairly evenly divided between the school-age and working-age populations, both of which are slightly lower than the corresponding national percentages.[50] Given current trends, regional demographic projections show that the ARC area will have over 5 million people ages 65 and over in 2025, nearly 20% of the total population. One of every 40 Appalachian residents will be among the oldest old, those ages 85 and over, in 2025.[51]

---

[47] Pollard, Kelvin. *Appalachia at the Millennium: An Overview of Results from Census 2000*. Population Reference Bureau, June, 2000. [http://www.arc.gov/images/reports/census2000/overview/appalachia_census2000.pdf]

[48] Pollard, Kelvin. *A "New Diversity": Race and Ethnicity in the Appalachian Regio*n. Population Reference Bureau, September, 2004. [http://www.arc.gov/index.do?nodeId=2310]

[49] Haaga, John. *The Aging of Appalachia*. Population Reference Bureau, April, 2004. [http://www.arc.gov/images/reports/aging/aging.pdf]

[50] Ibid., p.7.

[51] Ibid., p.9.

Table 2. Population: United States, California, and Counties of the SJV, 1980-2003

	Population (in 1000s)				Percent change		
	1980	1990	2000	2003	1980-1990	1990-2000	1990-2003
SJV	2,048	2,744	3,303	3,583	34.0	20.4	30.6
Fresno County	515	667	799	850	29.7	19.8	27.4
Kern County	403	545	662	713	35.2	21.4	30.8
Kings County	74	101	129	139	37.6	27.6	36.6
Madera County	63	88	123	133	39.6	39.8	51.5
Merced County	135	178	211	232	32.6	18.0	29.8
San Joaquin County	347	481	564	633	38.4	17.3	31.7
Stanislaus County	266	371	447	492	39.3	20.6	32.8
Tulare County	246	312	368	391	26.9	18.0	25.3
Adjacent counties							
Mariposa County	11	14	17	18	28.8	19.8	24.5
Tuolumne County	34	48	55	57	42.8	12.5	17.1
California	23,668	29,758	33,872	35,484	25.7	13.8	19.2
United States	226,542	248,718	281,422	290,810	9.8	13.1	16.9

Sources: U.S. Department of Commerce, U.S. Census Bureau, *2000 Census of Population and Housing, United States Summary*, PHC-3-1, Washington, U.S. Govt. Print. Off., 2004, p. 44; and U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

Table 3. Population Density: United States, California, and Counties of the SJV, 1980-2003

(population per square mile)

	1980	1990	2000	2003
SJV	75	101	121	131
Fresno County	86	112	134	143
Kern County	50	67	81	88
Kings County	53	73	93	100
Madera County	30	41	58	62
Merced County	70	92	109	120
San Joaquin County	248	343	403	452
Stanislaus County	178	248	299	329
Tulare County	51	65	76	81
Adjacent counties				
Mariposa County	8	10	12	12
Tuolumne County	15	22	24	25
California	151	191	217	228
United States	64	70	80	82

Source: Population data are from Table 2. Land area data are from U.S. Department of Commerce, U.S. Census Bureau, *2000 Census of Population and Housing, Summary Population and Housing Characteristics*, PHC-1-1, Washington, U.S. Govt. Print. Off., 2002, p. 11; U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, Population and Housing Unit Counts, United States, CPS-2-1, Washington, U.S. Govt. Print. Off., 2002, p. 116; and U.S. Department of Commerce, Bureau of the Census, *1980 Census of the Population, Characteristics of the Population, Number of Inhabitants, California*, PC80-1-A6, Washington, U.S. Govt. Print. Off., 1982, p. 6.8, available at [http://www2.census.gov/prod2/decennial/documents/1980a_caAB-01.pdf].

Table 4. Population: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Appalachian Counties of the Appalachian Regional Commission, 1980-2003

	Population (in 1000s)				Percent change		
	1980	1990	2000	2003	1980-1990	1990-2000	1990-2003
Central ARC Counties	1,837	1,732	1,783	1,785	-5.7	3.0	2.9
Kentucky	3,660	3,687	4,042	4,118	0.7	9.6	10.5
Tennessee	4,591	4,877	5,689	5,842	6.2	16.7	16.5
Virginia	5,347	6,189	7,079	7,386	15.8	14.4	16.2
West Virginia	1,950	1,793	1,808	1,810	-8.0	0.8	0.9
United States	226,54	248,71	281,42	290,81	9.8	13.1	16.9

Sources: U.S. Department of Commerce, U.S. Census Bureau, *2000 Census of Population and Housing, United States Summary*, PHC-3-1, Washington, U.S. Govt. Print. Off., 2004, p. 44; and U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

Table 5. Population Projections: United States, California, and Counties of the SJV, to 2010 and 2020

	Population (in 1000s)	Population projections (in 1000s)		Percent change, 2003-2010	Percent change, 2003-2020
	2003	2010	2020		
SJV	3,583	4,097	4,981	14.3	39.0
Fresno County	850	950	1,115	11.7	31.1
Kern County	713	809	950	13.4	33.2
Kings County	139	156	185	12.8	33.3
Madera County	133	150	184	12.6	37.8
Merced County	232	278	361	19.9	55.8
San Joaquin County	633	747	989	18.1	56.4
Stanislaus County	492	559	654	13.6	32.8
Tulare County	391	447	544	14.5	39.1
Adjacent counties					
Mariposa County	18	19	21	4.5	15.8
Tuolumne County	57	60	65	5.5	15.3
California	35,484	39,247	43,852	10.6	23.6
United States	290,810	308,936	335,805	6.2	15.5

Sources: Projections of U.S. population growth are from the U.S. Department of Commerce, Bureau of the Census, *U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin*, available at [http://www.census.gov/population/www/projections/popproj.html]. Projections for California are from the State of California, Department of Finance, *Population Projections by Race/Ethnicity for California and Its Counties 2000-2050*, Sacramento, California, May 2004, available at [http://www.dof.ca.gov/html/demograp/dru_publications/projections/p1.htm].

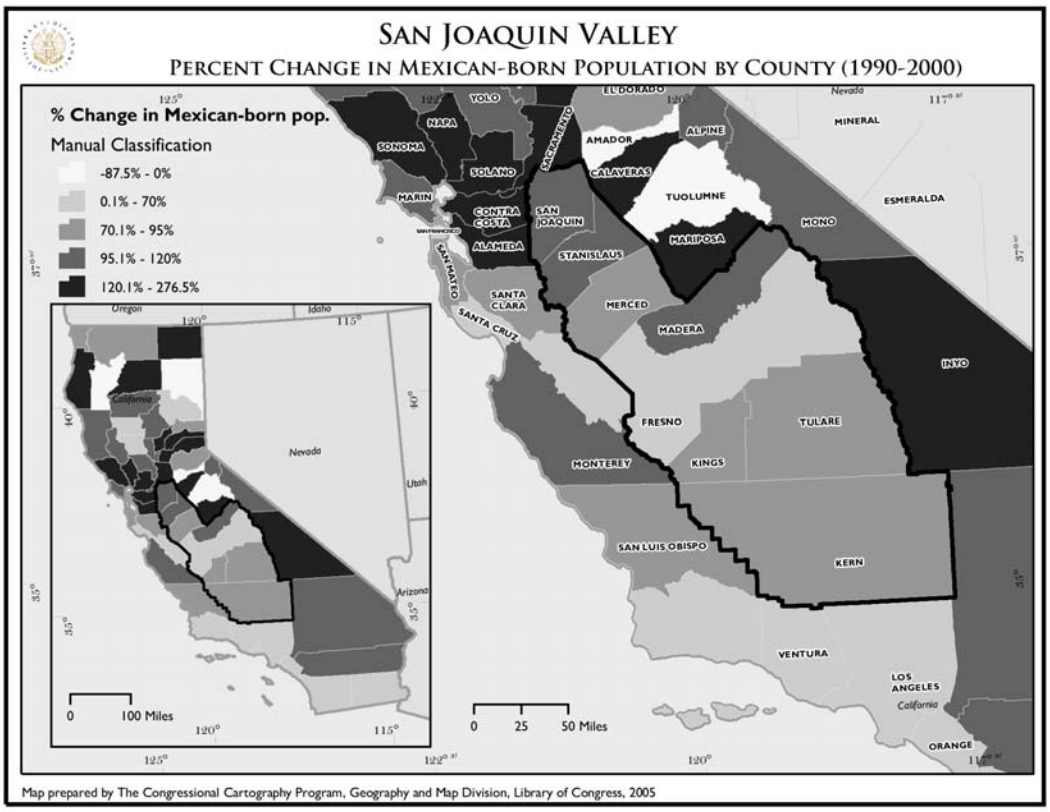
Table 11. Percent of the Population Mexican-Born: United States, California, and Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV	5.6%	8.8%	13.5%	
Fresno	6.0%	9.9%	14.0%	12.3%
Kern	5.2%	8.1%	12.6%	11.8%
Kings	5.5%	9.2%	12.7%	
Madera	6.4%	11.6%	17.4%	
Merced	7.8%	10.9%	17.3%	
San Joaquin	4.0%	6.0%	10.0%	11.2%
Stanislaus	4.3%	6.8%	11.4%	9.9%
Tulare	7.6%	12.5%	18.6%	19.2%
Adjacent counties				
Mariposa	0.4%	0.2%	0.6%	
Tuolumne	0.5%	1.4%	0.6%	
California	5.4%	8.3%	11.6%	11.4%
United States	1.0%	1.7%	3.3%	3.5%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population: Social and Economic Characteristics*, U.S. Govt. Print. Off, 1993; U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population: General Social and Economic Characteristics, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Figure 3. Percent Change in Mexican-Born Population by County, 1990-2000



Data Source: U.S. Bureau of the Census

Table 12. Distribution of Population by Race: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000 [a]	2003 [a]
SJV				
White	77.6%	69.6%	59.1%	
Black	4.2%	4.4%	4.7%	
American Indian and Native Alaskan	1.3%	1.2%	1.4%	
Asian and Pacific Islander	2.9%	6.8%	6.3%	
Other	14.0%	18.0%	23.3%	
Two or more races			5.3%	
Fresno County				
White	74.8%	63.5%	54.1%	70.9%
Black	5.0%	4.9%	5.1%	5.1%
American Indian and Native Alaskan	1.2%	1.1%	1.6%	1.0%
Asian and Pacific Islander	3.0%	8.6%	8.1%	8.4%
Other	16.0%	21.9%	26.0%	10.5%
Two or more races			5.1%	4.0%
Kern County				
White	77.4%	69.8%	61.4%	77.4%
Black	5.2%	5.5%	5.9%	5.4%
American Indian and Native Alaskan	1.7%	1.3%	1.4%	1.3%
Asian and Pacific Islander	2.0%	3.0%	3.4%	3.6%
Other	13.7%	20.3%	23.5%	10.1%
Two or more races			4.5%	2.3%
Kings County				
White	75.3%	63.9%	53.5%	
Black	4.9%	8.3%	8.1%	
American Indian and Native Alaskan	NA	1.5%	1.6%	
Asian and Pacific Islander	NA	3.6%	3.1%	
Other	19.8%	22.7%	28.4%	
Two or more races			5.2%	
Madera County				
White	75.7%	72.2%	62.5%	
Black	3.4%	2.8%	3.9%	
American Indian and Native Alaskan	1.8%	1.5%	2.6%	
Asian and Pacific Islander	1.1%	1.4%	1.5%	
Other	18.0%	22.0%	24.3%	
Two or more races			5.2%	

	1980	1990	2000 [a]	2003 [a]
Merced County				
White	77.9%	67.5%	55.8%	
Black	5.0%	4.9%	3.7%	
American Indian and Native Alaskan	1.0%	0.9%	1.0%	
Asian and Pacific Islander	2.4%	8.3%	7.1%	
Other	13.7%	18.3%	26.2%	
Two or more races			6.2%	
San Joaquin County				
White	76.8%	73.5%	57.9%	68.9%
Black	5.6%	5.6%	6.5%	7.0%
American Indian and Native Alaskan	1.3%	1.2%	1.0%	1.2%
Asian and Pacific Islander	6.3%	12.4%	11.9%	14.4%
Other	10.1%	7.2%	16.5%	5.8%
Two or more races			6.2%	2.6%
Stanislaus County				
White	88.1%	80.4%	69.1%	80.7%
Black	1.2%	1.6%	2.4%	2.8%
American Indian and Native Alaskan	1.7%	1.2%	1.2%	1.0%
Asian and Pacific Islander	1.7%	5.1%	4.5%	4.8%
Other	7.2%	11.7%	16.9%	8.2%
Two or more races			6.0%	2.5%
Tulare County				
White	74.4%	65.9%	57.9%	64.3%
Black	1.5%	1.5%	1.7%	1.5%
American Indian and Native Alaskan	1.3%	1.3%	1.3%	0.9%
Asian and Pacific Islander	2.1%	4.4%	3.4%	3.3%
Other	20.8%	27.0%	31.0%	27.2%
Two or more races			4.6%	2.7%
Adjacent Counties				
Mariposa County				
White	NA	92.4%	88.4%	
Black	NA	1.0%	0.6%	
American Indian and Native Alaskan	NA	4.5%	3.1%	
Asian and Pacific Islander	NA	0.9%	0.7%	
Other	NA	1.2%	2.9%	
Two or more races			4.3%	

	1980	1990	2000 [a]	2003 [a]
Tuolumne County				
White	94.7%	90.6%	89.4%	
Black	NA	3.1%	2.3%	
American Indian and Native Alaskan	1.6%	2.2%	1.8%	
Asian and Pacific Islander	NA	0.8%	0.9%	
Other	3.7%	3.4%	2.6%	
Two or more races			3.0%	
California				
White	77.0%	69.1%	59.4%	66.2%
Black	7.7%	7.4%	6.6%	6.2%
American Indian and Native Alaskan	1.0%	0.8%	0.9%	0.8%
Asian and Pacific Islander	5.5%	9.6%	11.2%	12.2%
Other	8.8%	13.1%	16.9%	11.6%
Two or more races			5.0%	2.9%
United States				
White	83.4%	80.3%	75.1%	76.2%
Black	11.7%	12.0%	12.2%	12.1%
American Indian and Native Alaskan	0.7%	0.8%	0.9%	0.8%
Asian and Pacific Islander	1.6%	2.9%	3.7%	4.3%
Other	2.5%	3.9%	5.5%	4.8%
Two or more races			2.6%	1.9%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Details may not sum to 100% because of rounding. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 13. Distribution of Population by Gender: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV				
Male	49.5%	50.0%	50.2%	
Female	50.5%	50.0%	49.8%	
Fresno County				
Male	49.2%	49.4%	49.9%	49.9%
Female	50.8%	50.6%	50.1%	50.1%
Kern County				
Male	49.8%	50.3%	51.2%	49.9%
Female	50.2%	49.7%	48.8%	50.1%
Kings County				
Male	50.5%	53.7%	57.4%	
Female	49.5%	46.3%	42.6%	
Madera County				
Male	50.5%	50.4%	47.6%	
Female	49.5%	49.6%	52.4%	
Merced County				
Male	50.2%	50.5%	49.6%	
Female	49.8%	49.5%	50.4%	
San Joaquin County				
Male	49.4%	50.6%	49.8%	49.5%
Female	50.6%	49.4%	50.2%	50.5%
Stanislaus County				
Male	48.9%	49.0%	49.1%	49.6%
Female	51.1%	51.0%	50.9%	50.4%
Tulare County				
Male	49.4%	49.6%	49.8%	50.0%
Female	50.6%	50.4%	50.2%	50.0%
Adjacent Counties				
Mariposa County				
Male	51.0%	49.2%	50.7%	
Female	49.0%	50.8%	49.3%	

	1980	1990	2000	2003
Tuolumne County				
Male	50.8%	53.2%	52.6%	
Female	49.2%	46.8%	47.4%	
California				
Male	49.3%	50.0%	49.7%	49.6%
Female	50.7%	50.0%	50.3%	50.4%
United States				
Male	48.6%	48.7%	49.0%	48.9%
Female	51.4%	51.3%	51.0%	51.1%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 14. Distribution of Population by Age: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV				
Less Than 5	8.6%	9.2%	8.2%	
5 to 14	16.3%	17.7%	18.4%	
15-24	19.0%	14.6%	15.5%	
25-54 (prime age)	36.9%	41.0%	40.9%	
55-64	9.0%	7.2%	7.1%	
65 and over	10.2%	10.3%	9.9%	
Fresno County				
Less Than 5	8.3%	9.3%	8.4%	8.2%
5 to 14	15.8%	17.6%	18.4%	17.5%
15-24	19.7%	15.3%	16.3%	16.6%
25-54 (prime age)	37.3%	40.4%	40.3%	40.4%
55-64	8.8%	7.1%	6.8%	7.7%
65 and over	10.0%	10.2%	9.9%	9.5%
Kern County				
Less Than 5	8.9%	9.6%	8.3%	8.5%
5 to 14	16.3%	17.6%	18.4%	17.9%
15-24	18.8%	14.1%	15.3%	16.4%
25-54 (prime age)	37.0%	41.8%	41.6%	39.9%
55-64	9.2%	7.2%	7.0%	8.1%
65 and over	9.7%	9.7%	9.4%	9.1%
Kings County				
Less Than 5	9.8%	9.3%	7.9%	
5 to 14	17.4%	17.1%	16.5%	
15-24	20.5%	16.1%	16.1%	
25-54 (prime age)	36.4%	43.7%	46.1%	
55-64	7.3%	6.1%	5.9%	
65 and over	8.6%	7.7%	7.5%	
Madera County				
Less Than 5	9.2%	8.4%	7.6%	
5 to 14	17.4%	18.0%	16.8%	
15-24	16.4%	13.4%	14.8%	
25-54 (prime age)	36.9%	39.4%	41.8%	
55-64	9.2%	8.7%	8.2%	

	1980	1990	2000	2003
65 and over	10.9%	12.1%	10.7%	
Merced County				
Less Than 5	9.4%	10.1%	8.7%	
5 to 14	17.2%	19.2%	20.2%	
15-24	20.4%	15.3%	15.7%	
25-54 (prime age)	36.2%	39.1%	39.1%	
55-64	8.2%	7.1%	6.9%	
65 and over	8.5%	9.2%	9.4%	
San Joaquin County				
Less Than 5	7.8%	8.6%	7.8%	7.7%
5 to 14	15.7%	16.6%	18.0%	17.2%
15-24	18.4%	14.5%	15.0%	15.7%
25-54 (prime age)	37.1%	41.7%	41.2%	41.7%
55-64	9.7%	7.5%	7.4%	8.4%
65 and over	11.2%	11.1%	10.6%	9.4%
Stanislaus County				
Less Than 5	8.2%	9.1%	7.9%	8.0%
5 to 14	16.1%	17.2%	18.2%	16.7%
15-24	18.4%	13.8%	14.7%	15.7%
25-54 (prime age)	37.5%	41.7%	41.5%	42.0%
55-64	9.0%	7.2%	7.3%	8.2%
65 and over	10.9%	10.9%	10.4%	9.4%
Tulare County				
Less Than 5	9.2%	9.3%	8.9%	9.1%
5 to 14	17.5%	19.0%	19.3%	18.3%
15-24	18.5%	14.7%	16.2%	17.0%
25-54 (prime age)	35.1%	39.2%	39.0%	38.9%
55-64	9.1%	7.1%	7.0%	7.7%
65 and over	10.7%	10.7%	9.7%	9.1%
Adjacent Counties				
Mariposa County				
Less Than 5	5.3%	6.3%	4.8%	
5 to 14	13.0%	12.8%	13.0%	
15-24	16.6%	9.7%	11.0%	
25-54 (prime age)	37.4%	41.9%	41.3%	
55-64	12.3%	11.4%	12.9%	

	1980	1990	2000	2003
65 and over	15.4%	17.8%	17.0%	
Tuolumne County				
Less Than 5	6.5%	5.7%	4.7%	
5 to 14	13.7%	13.4%	11.8%	
15-24	15.5%	10.7%	12.1%	
25-54 (prime age)	38.3%	42.9%	41.6%	
55-64	12.4%	10.9%	11.4%	
65 and over	13.7%	16.5%	18.5%	
California				
Less Than 5	7.2%	8.0%	7.2%	7.3%
5 to 14	14.6%	14.2%	15.8%	15.4%
15-24	18.9%	15.0%	14.1%	13.9%
25-54 (prime age)	39.9%	44.8%	44.7%	44.3%
55-64	9.3%	7.5%	7.6%	8.9%
65 and over	10.1%	10.5%	10.6%	10.3%
United States				
Less Than 5	7.2%	7.3%	6.8%	7.0%
5 to 14	15.4%	14.2%	14.6%	14.5%
15-24	18.7%	14.6%	13.8%	13.4%
25-54 (prime age)	37.8%	42.8%	43.7%	43.4%
55-64	9.6%	8.5%	8.6%	9.8%
65 and over	11.3%	12.5%	12.4%	12.0%

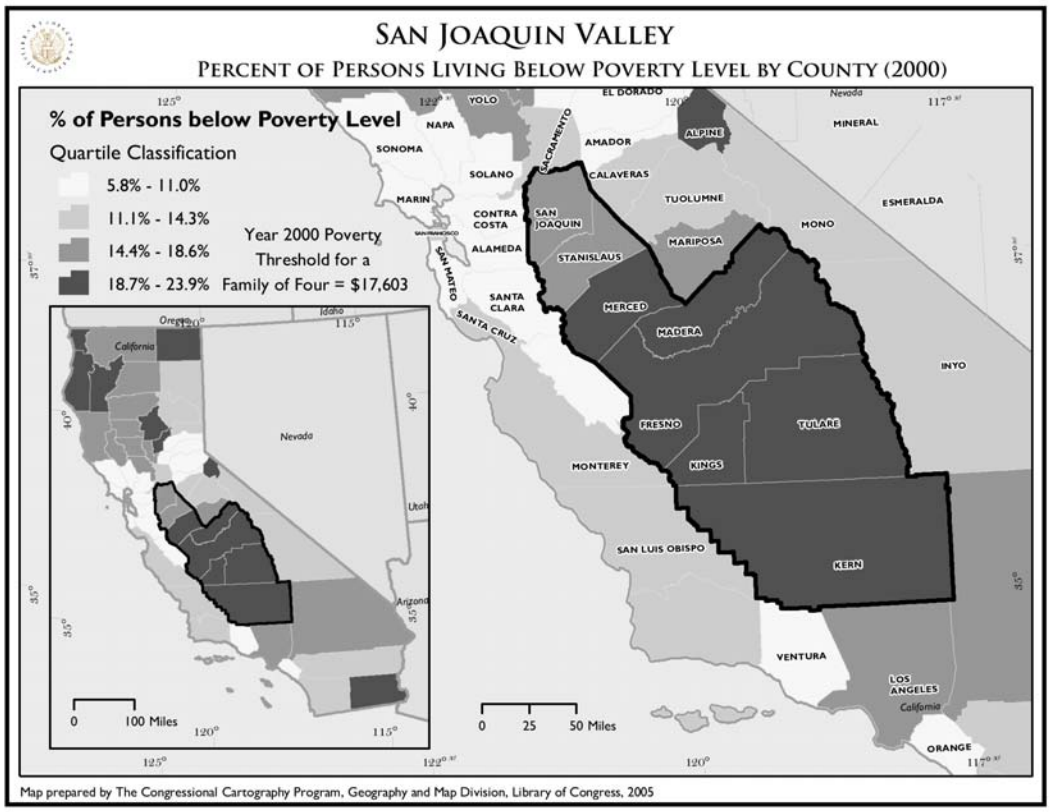
Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983. Data for 2003 are from the American Community Survey (ACS), which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties

Note: Details may not sum to 100% because of rounding. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

County and Regional Poverty Rates. Socioeconomic conditions in the SJV as measured by a range of variables (including per capita income, poverty, unemployment rates, median household income, Medicaid and Food Stamp participation rates, and sources of personal income) reveal an area that falls significantly below national and California averages. The 2000 poverty rate for the SJV (20.5%), for example, was higher than the national rate (12.4%), California (14.2%), and the 410 county ARC region (13.6%) (**Table 15 and Table 16**). While the SJV's poverty rate was somewhat closer both to the national and California

averages in 1980, the SJV counties saw significant increases in their poverty rates by 1990. These high rates continued to increase during the 1990s and increased between 1990 and 2000. However, in 2003, the rates declined somewhat in the 5 counties for which there were data, as they did in California. Poverty rates in the United States, however, rose slightly between 2000 and 2003. The two adjacent counties of Mariposa and Tuolumne had 2000 poverty rates of 14.8% and 11.4% respectively. **Figure 4** maps county poverty rates for the SJV and other California counties. Poverty rates for the entire 410 county ARC region, 1980-2000, were significantly lower than those of the San Joaquin counties, although some Appalachian states had poverty rates comparable to the SJV. ARC poverty rates were about 2.5 percentage points higher than the United States during the decades 1980-2000, although ARC area poverty rates did vary by state (**Table 17**).

Figure 4. Percent of Persons Below Poverty Level by County (2000)



Data Source: U.S. Bureau of the Census

Turning to the 68 counties of Central Appalachia, the picture is different. In 1980, Central Appalachia had a poverty rate of 23.0% compared to a rate in the SJV of 13.9%. In 1990, poverty rates for both Central Appalachia and the SJV had risen to 26.9% and 18.3% respectively. Central Appalachia's poverty rate was also higher than the rate for all the Appalachian parts of Kentucky, Tennessee, Virginia, and West Virginia in 1980, 1990, and 2000 (**Table 16 and Table 17**). By 2000, Central Appalachia's poverty rate had fallen to 23.2% while the SJV rate had increased to 20.5%. In 2003, some counties of the SJV also had somewhat lower poverty rates

than were evident in 2000. Poverty rates also fell in the four Appalachian states where the 68 counties are located (**Table 17**).

For the entire ARC defined region, the 1980 poverty rate was 14.1% (**Table 16**). This ARC-wide rate was lower than the rate for all the Appalachian parts of Kentucky, Tennessee, Virginia, and West Virginia in 1980. Kentucky's Appalachian region alone had a poverty rate of 26%, highest among all 13 state Appalachian regions (**Table 17**). The ARC-wide rate, 1990-2000, was always higher than the U.S. rate, showing that Appalachia today still represents a region that is more impoverished than the United States as a whole. By 2000, the ARC-wide region's poverty rate declined to 13.6%, still lower than the poverty rates for all the Appalachian parts of Kentucky, Tennessee, Virginia, and West Virginia. This relatively low rate of the ARC-wide region suggests the possible statistical skewing that this analysis tried to avoid by focusing predominantly on the 68 county Central Appalachian area.

Table 15. Portion of the Population Below Poverty: United States, California, and Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV	13.9%	18.3%	20.5%	NA
Fresno	14.5%	21.4%	22.9%	21.8%
Kern	12.6%	16.9%	20.8%	18.1%
Kings	14.6%	18.2%	19.5%	
Madera	15.7%	17.5%	21.4%	
Merced	14.7%	19.9%	21.7%	
San Joaquin	13.3%	15.7%	17.7%	14.2%
Stanislaus	11.9%	14.1%	16.0%	12.9%
Tulare	16.5%	22.6%	23.9%	22.9%
Adjacent counties				
Mariposa	11.5%	12.7%	14.8%	
Tuolumne	11.9%	9.1%	11.4%	
California	11.4%	12.5%	14.2%	13.4%
United States	12.4%	13.1%	12.4%	12.7%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 16. Appalachian Regional Commission Poverty Rates, 1980-2000

State	Year	Persons for Whom Poverty Status is Determined	Persons Below Poverty Level	Poverty Rate	Percent of U.S. Average
Totals, Appalachian Portion of the State					
Alabama	1980	2,421,498	408,883	16.9	136.1
	1990	2,510,095	404,533	16.1	122.9
	2000	2,767,821	397,223	14.4	115.9
Georgia	1980	1,124,481	140,896	12.5	101
	1990	1,520,643	154,611	10.2	77.5
	2000	2,169,854	200,543	9.2	74.7
Kentucky	1980	1,081,384	281,333	26	209.7
	1990	1,045,741	303,238	29	221
	2000	1,109,411	271,113	24.4	197.4
Maryland	1980	211,771	25,296	11.9	96.3
	1990	212,688	26,481	12.5	94.9
	2000	220,722	25,719	11.7	94.1
Mississippi	1980	542,150	125,151	23.1	186.1
	1990	551,305	129,538	23.5	179.1
	2000	598,698	116,283	19.4	156.9
New York	1980	1,031,537	124,156	12	97
	1990	1,034,063	133,032	12.9	98.1
	2000	1,016,532	138,586	13.6	110.1
North Carolina	1980	1,187,272	164,175	13.8	111.5
	1990	1,270,693	158,185	12.4	94.9
	2000	1,482,507	173,822	11.7	94.7
Ohio	1980	1,346,905	169,992	12.6	101.8
	1990	1,334,561	232,297	17.4	132.7
	2000	1,409,519	191,502	13.6	109.8

State	Year	Persons for Whom Poverty Status is Determined	Persons Below Poverty Level	Poverty Rate	Percent of U.S. Average
Totals, Appalachian Portion of the State					
Pennsylvania	1980	5,847,250	586,629	10	80.9
	1990	5,593,189	696,729	12.5	95
	2000	5,613,487	639,853	11.4	92.1
South Carolina	1980	770,339	96,995	12.6	101.5
	1990	862,416	99,634	11.6	88.1
	2000	1,000,780	117,314	11.7	94.7
Tennessee	1980	2,029,828	337,437	16.6	134
	1990	2,095,424	337,709	16.1	122.9
	2000	2,420,962	342,706	14.2	114.4
Virginia	1980	637,134	99,104	15.6	125.4
	1990	614,437	112,245	18.3	139.3
	2000	638,257	100,438	15.7	127.1
West Virginia	1980	1,914,081	286,995	15	120.9
	1990	1,755,331	345,093	19.7	149.9
	2000	1,763,866	315,794	17.9	144.6
United States	1980	220,845,766	27,392,580	12.4	100
	1990	241,997,859	31,742,864	13.1	100
	2000	273,882,232	33,899,812	12.4	100
ARC Region	1980	20,145,630	2,847,042	14.1	113.9
	1990	20,400,586	3,133,325	15.4	117.1
	2000	20,212,416	3,030,896	13.6	110.2

Source: Appalachian Regional Commission

Table 17. Portion of the Population Below Poverty: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	1980	1990	2000	2003
Central ARC Counties	23.0%	26.9%	23.2%	NA
Kentucky	17.6%	19.0%	15.8%	17.4%
Tennessee	16.5%	15.7%	13.5%	13.8%
Virginia	11.8%	10.2%	9.6%	9.0%
West Virginia	15.0%	19.7%	17.9%	18.5%
United States	12.4%	13.1%	12.4%	12.7%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Other Poverty Measures: Food Stamps, Public Assistance Income, Health Insurance, and Medicaid. Poverty rates provide one useful perspective on socioeconomic well-being. Poverty rates use income thresholds weighted for different household sizes. Other indicators of a region's degree of poverty can include the proportion of the population receiving food stamps, the percent of households reporting public assistance income, the population without health insurance, and the percent of the population enrolled in Medicaid. Medicaid, for example, is consistent with an income maintenance program because payments are made to households with lower income, or with medical expenses that are beyond the household's financial capacity. These can be imperfect regional measures, however, because the percent of a population receiving assistance from some social welfare program may be, and often is, lower than the percent of the population that is actually eligible by income level to receive assistance under the particular program. For example, immigrants may be unaware of their eligibility for particular programs, or, if they are knowledgeable, fail to take advantage of the assistance. According to the Appalachian Service Project in Johnson City, Tennessee, a 1992 survey of a 10-county area in southwestern Virginia found that of 90,197 families qualified for food

stamps, only 51,649 received food stamp assistance.[52] Still, these additional indicators can serve as supporting evidence about the depth and breadth of regional poverty.

Food Stamps. The inability to buy sufficient food is a significant indicator of poverty. Food stamp eligibility indicates an income insufficient to purchase adequate food. Data on the SJV's MSAs three-year averages of food stamp use show that the SJV has a higher percent of households receiving food stamps than either California or the United States (**Table 18**). In the period 1988-1990, 12.1% of SJV households within MSAs received food stamps, compared to 5% of households in California and 7.2% of households in the United States. Food stamp use increased to 13% in the period 1998-2000, while the percent of households receiving food stamps fell in the United States to 5.6% and rose only slightly in California to 5.1%.[53] Households receiving food stamps in the SJV fell in the period 2001-2003 to 8.1%, trending in the same direction as households in the state, which fell to 3.8%. In each of the three sampling periods, the Visalia-Tulare-Porterville MSA had the highest proportion of households receiving food stamps. In the period 2001-2003, that MSA had 15.6% of its households receiving food stamps, down from 19.1% in the 1998-2000 period. The Merced MSA saw a significant increase in the 1998-2000 period, rising from 8.2% of households in 1988-1990 to 15.8% of households in 1998-2000. In the period 2001-2003, however, the percent of households receiving food stamps fell to 8.1%. The Stockton-Lodi MSA saw a steady decrease in the percent of households receiving food stamps in the three sampling periods, declining from 10.5% to 8.3% to 3.8% respectively. The Bakersfield MSA also had a significant decrease in the 2001-2003 period, declining to 6.1% of households in 2001-2003 from 14.0% of households in 1998-2000.

Comparable data on household food stamp participation rates across the 68 Central Appalachian counties were not available. Other data on the ARC-defined Appalachian region in general, and Central Appalachia especially, indicate an area where food stamps use is high. Per capita funding for food stamps in the 410 county ARC area was $120.26 in 1990, declining 36% to a per capita expenditure of $77.34 in 2000. For the United States, per capita food stamp funding was $92.00 in 1990,

---

[52] A 2004 Government Accountability Office (GAO) report discussed state efforts to increase food stamp participation rates among those who are eligible. See *Food Stamp Program: Steps Have Been Taken to Increase Participation of Working Families, but Better Tracking of Efforts Is Needed.* GAO 04-236, March, 2004.

[53] The 1996 Personal Responsibility and Work Opportunities Reconciliation Act limited social welfare benefits to three months in three years for able-bodied adults aged 18-50 without dependents (ABAWD). States, however, were permitted waivers for areas of high unemployment. California did not have an "ABAWD waiver" to help ABAWDs get assistance and ABAWD participation fell significantly. The state legislature passed SB 68 in July, 2005 which automatically requires the state to seek a waiver for eligible counties to the extent permitted by federal law. Given the relatively high proportion of single farmworkers in the SJV, this measure may provide food stamps to thousands of SJV residents in coming years.

declining to $59.06 in 2000.[54] The 215 county Central Appalachian area as defined by the ARC, which includes th 68 counties profiled in this chapter, had the highest per capita expenditures for food stamps among the ARC's three subareas. Per capita funding on food stamps in the ARC's Central Appalachian subregion was $199.26 in 1990, declining to $139.25 in 2000.

[54] Black, Dan A. And Seth G. Sanders. *Labor Market Performance, Poverty, and Income Inequality in Appalachia.* Report prepared by the ARC and the Population Reference Bureau. September, 2004.

Table 18. Percent of Households Receiving Food Stamps: United States, California, and the MSAs of the SJV, 1988-2003

	1988-1990	1998-2000	2001-2003
SJV	12.1%	13.0% [a]	8.1%
Bakersfield (Kern County)	9.6%	14.0%	6.1%
Fresno (Fresno County 1989-1991; Fresno and Madera Counties later years)	14.8%	13.8%	9.1%
Merced (Merced County)	8.2%	15.8%	8.9%
Modesto (Stanislaus County)	NA	8.2%	6.7%
Stockton-Lodi (San Joaquin County)	10.5%	8.3%	3.8%
Visalia-Tulare-Porterville (Tulare County)	16.3%	19.1%	15.6%
California	5.0%	5.1%	3.8%
United States	7.2%	5.6%	5.7%

Source: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects food stamp information for the previous year.

Notes: In order to increase the sample sizes for each Metropolitan Statistical Area all estimates are three-year averages. An MSA consists of an urban center (or centers) and adjacent communities that have a high degree of economic and social integration.

a. Data for 1998 and later years may not be comparable to data for 1988-1990. Data for 1998 and later years include an MSA for Merced County. For 1998 and later, the Fresno MSA includes both Fresno and Madera counties.

Public Assistance Income. The percentage of households in the SJV reporting public assistance income is higher than for California and for the United States (**Table 19**). Nearly 14% of households in the SJV received public assistance income in 1980 and received higher average amounts in most of the counties than the national or state averages. By 2000, the proportion of households receiving public assistance income had fallen to 7.8%, down from 15.5% in 1990. Average amounts of assistance received also fell from $6,384 to $4,808. Data from those SJV counties reported by the U.S. Census in 2003 showed further declines in the proportion of county households receiving public assistance income, although the average amounts increased slightly (Note: Tulare County increased slightly from 8.6% to 8.7%). **Figure 5** maps public assistance income data for the SJV in 2000 and contrast it with other California counties.

The percentage of households reporting public assistance income is higher in the SJV than the percentage reporting public assistance income in Central Appalachia

(**Table 20**). In 1980, 12.8% of Central Appalachian households received public assistance averaging $2,259. By 2000, only 5.9% of Central Appalachian households were receiving public assistance income, and the average amounts were lower than they were 20 years earlier, $2,130. In the four Appalachian states, the proportion of households receiving public assistance income in 2003 was also lower than it was in the eight counties of the SJV.

Table 19. Public Assistance Income: United States, California, and the Counties of the SJV, 1980-2003

	1980		1990		2000		2003	
	Percent of households with public assistance income	Average amount	Percent of households with public assistance income	Average amount	Percent of households with public assistance income	Average amount	Percent of households with public assistance income	Average amount
SJV	13.7%	$3,096	15.5%	$6,384	7.8%	$4,808	NA	NA
Fresno	13.4%	$3,230	16.5%	$6,636	8.5%	$4,969	5.8%	$5,060
Kern	11.8%	$2,860	13.1%	$5,595	7.5%	$4,471	6.8%	$5,282
Kings	13.8%	$3,060	15.8%	$5,765	7.6%	$4,124		
Madera	14.5%	$3,086	14.9%	$5,505	8.0%	$5,024		
Merced	14.0%	$3,158	16.7%	$6,714	9.1%	$5,113		
San Joaquin	14.1%	$3,172	15.6%	$7,300	7.2%	$4,964	5.4%	$4,527
Stanislaus	13.3%	$2,888	14.2%	$6,260	6.3%	$4,699	3.7%	$3,022
Tulare	16.8%	$3,226	18.2%	$5,967	8.6%	$4,819	8.7%	$5,618
Adjacent counties								
Mariposa	10.6%	$2,832	12.2	$5,197	5.0%	$4,476		
Tuolumne	8.0%	$2,785	10.6	$5,889	4.3%	$4,156		
California	9.6%	$3,036	9.4	$5,972	4.9%	$4,819	3.6%	$4,896
United States	8.0%	$2,518	7.5	$4,078	3.4%	$3,032	2.5%	$3,084

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

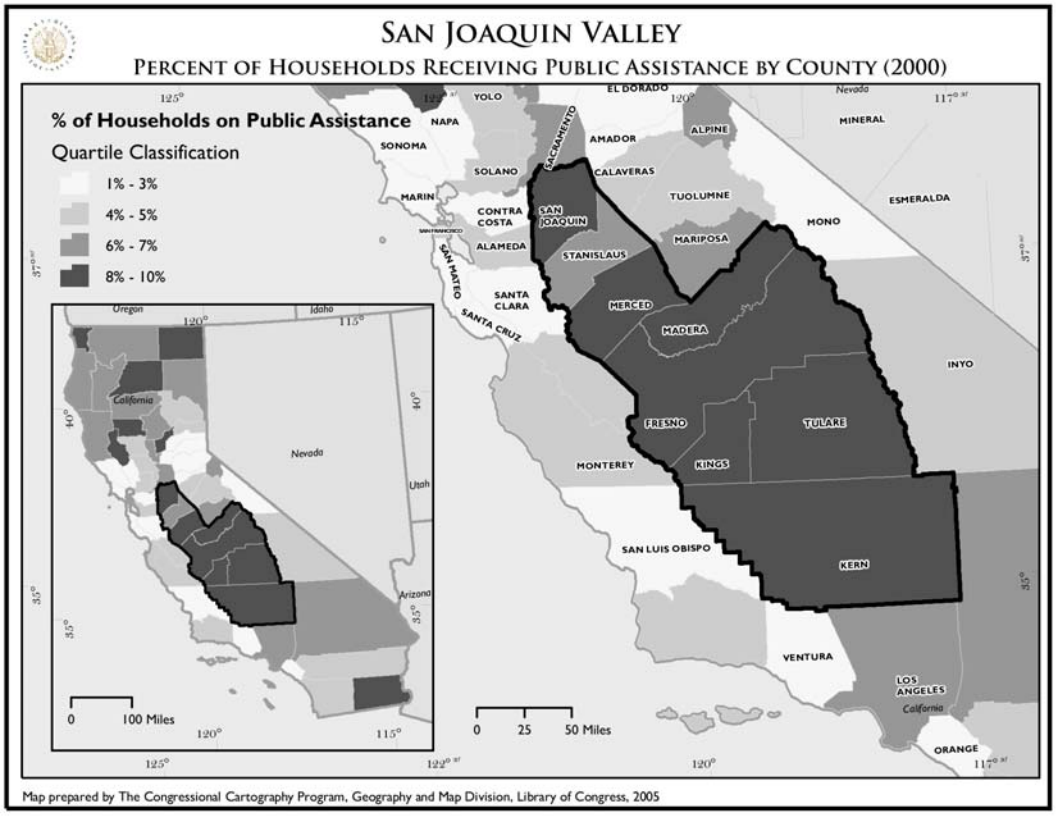
Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 20. Public Assistance Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	1980		1990		2000		2003	
	Percent of households with public assistance income	Average amount	Percent of households with public assistance income	Average amount	Percent of households with public assistance income	Average amount	Percent of households with public assistance income	Average amount
Central ARC Counties	12.8%	$2,259	13.9%	$3,499	5.9%	$2,130	NA	NA
Kentucky	9.7%	$2,038	9.6%	$3,282	3.8%	$2,174	2.0%	$2,363
Tennessee	9.3%	$1,905	8.4%	$3,035	3.5%	$1,984	2.6%	$1,603
Virginia	6.6%	$2,166	5.4%	$3,394	2.5%	$2,242	1.8%	$2,528
West Virginia	8.7%	$2,348	9.7%	$3,545	4.0%	$2,019	3.1%	$2,588
United States	8.0%	$2,518	7.5%	$4,078	3.4%	$3,032	2.5%	$3,084

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Figure 5. Percent of Households Receiving Public Assistance by County (2000)



Data Source: U.S. Bureau of the Census

Health Insurance. A 2000 study by the Urban Institute found that 14% percent of U.S. urban residents under age 65 were without health insurance.[55] In 2001-2003, 15.2% of the U.S. population were uninsured and 18.7% of the California population were uninsured. **Table 21** shows that the SJV MSAs, California, and the United States each saw a significant increase in the percent uninsured between 1988-1990 and 2001-2003. The SJV's share of its population without health insurance increased from 12.9% to 20.0% during that time period. California's portion of its population without health insurance increased from 14.9% to 18.7%, while the share of the United States population without health insurance increased from 10.8% to 15.2%.

Health insurance among low-income individuals is of particular concern in the SJV. Between 1999 and 2002, public health insurance coverage increased among two groups of low-income U.S.-citizen children: (1) those with parents who are native or naturalized U.S. citizens and (2) those with at least one immigrant parent who is not a U.S. citizen (referred to as mixed-status families). The improvements in coverage followed efforts on the part of the states and the federal government to expand coverage of children under Medicaid and the State Children's Health Insurance Program (SCHIP) and the introduction of policies directed at improving Medicaid and SCHIP access for immigrant and non-English speaking families. Still, nearly 20% of citizen children in low-income mixed-status families remained uninsured in 2002. This is a rate 74% percent higher than that of children with citizen parents.[56] U.S. Census data in 2003 also showed that 33% of Hispanics nationally are without health insurance.[57]

While the percentage of the SJV metropolitan population without health insurance increased only slightly in the 2001-2003 period, particular MSAs in the SJV saw larger increases. Fresno's percent of its population without health insurance increased to 22.6% in 2001-2003, up from 18.7% in 1998-2000. The percentage of Modesto residents without insurance also increased, from 15.2% in 1998-2000 to 18.6% in 2001-2003. The percentage without health insurance fell significantly in Bakersfield, falling from 20.5% in 1998-2000 to 15.7% in 2001-2003.

Data on the percentage of residents without health insurance in the 68 largely rural Central Appalachian counties were not available. However, rural areas nationally have rates of uninsured significantly higher than those for urban areas. The percentage of rural businesses that have health insurance is generally lower than the rate in urban areas. **Table 22** shows that the percentage of the population without health insurance in each of the four Appalachian states that include the 68 counties was lower than for both California and the SJV in each three-year sampling period,

---

[55] Ormond, Barbara, Stephen Zuckerman, and Aparna Lhila, "Rural/Urban Differences in Health Care Are Not Uniform Across States," *Assessing the New Federalism Brief B-11*. Washington, D.C.: Urban Institute. May, 2000.

[56] Capps, Randolph, Genevieve M. Kenney, and Michael E. Fix. *Health Insurance Coverage of Children in Mixed-Status Immigrant Families*. Washington D.C.: Urban Institute. November, 2003.

[57] U.S. Bureau of the Census. *Income, Poverty, and Health Insurance Coverage in the United States: 2003*. August, 2004.

1988-2003. In 2001-2003, West Virginia had the highest percentage of uninsured, 14.8% of its population while the SJV in that period had 20.0% of its population without health insurance. In some cases, the proportion of uninsured in SJV metropolitan areas was almost double the rate in some Appalachian states. Central Appalachian counties, being poorer and more rural, likely had insurance rates lower than for their respective states.

Medicaid. Additional detail on the extent of poverty in a region as measured by participation in various income maintenance programs can be provided through indicators of Medicaid enrollment **(Table 23)**. Consistent with poverty indicators presented earlier, the SJV has a significant proportion of its residents enrolled in Medicaid. In the three-year sampling period, 2001-2003, the SJV had nearly 23% of the population enrolled in Medicaid compared to 14.4% of California and 11.7% of U.S. residents. Some MSAs in the SJV had rates over 25%. The percentage of Visalia-Tulare-Porterville's population enrolled in Medicaid was 34% in 2001-2003, up from 30.4% in 1998-2000, and 21.1% in 1988-1990. With the exception of Stockton-Lodi, which saw its percentage of Medicaid enrollment decline from 24.4% in 1988-1990 to 17.8% in 2001-2003, each of the other SJV MSAs saw increases during that time frame.

County data on Medicaid enrollments were not available for Central Appalachia. The respective Appalachian states, however, each had Medicaid enrollments significantly lower than the SJV region.

Table 21. Percent of Population Without Health Insurance: United States, California, and the MSAs of the SJV, 1988-2003

	1988-1990	1998-2000	2001-2003
SJV	12.9%	19.8% [a]	20.0%
Bakersfield (Kern County)	12.2%	20.5%	15.7%
Fresno (Fresno County 1989-1991; Fresno and Madera Counties later years)	15.6%	18.7%	22.6%
Merced (Merced County)	NA	21.4%	18.3%
Modesto (Stanislaus County)	8.8%	15.2%	18.6%
Stockton-Lodi (San Joaquin County)	8.4%	19.6%	20.3%
Visalia-Tulare-Porterville (Tulare County)	17.4%	24.6%	23.6%
California	14.9%	20.3%	18.7%
United States	10.8%	15.3%	15.2%

Sources: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects health insurance information for the previous year.

Notes: Beginning in March 2000, the CPS asked respondents who reported that they were not covered by a health insurance plan whether they were, in fact, uninsured. This verification question lowered the reported number of uninsured persons. In order to increase the sample sizes for each MSA, all estimates are three-year averages. An MSA consists of an urban center (or centers) and adjacent communities that have a high degree of economic and social integration.

a. Data for 1998 and later years may not be comparable to data for 1988-1990. Data for 1998 and later years include an MSA for Merced County. For 1998 and later, the Fresno MSA includes both Fresno and Madera counties.

Table 22. Percent of Population Without Health Insurance: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1988-2003

	1988-1990	1998-2000	2001-2003
Central ARC Counties	NA	NA	NA
Kentucky	10.9%	13.8%	13.3%
Tennessee	10.5%	11.6%	11.8%
Virginia	10.0%	13.7%	12.5%
West Virginia	10.9%	16.1%	14.8%
United States	10.8%	15.3%	15.2%

Sources: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects health insurance information for the previous year.

Notes: Beginning in March 2000, the CPS asked respondents who reported that they were not covered by a health insurance plan whether they were, in fact, uninsured. This verification question lowered the reported number of uninsured persons. In order to increase the sample sizes for each state, all estimates are three-year averages.

Table 23. Percent of the Population Enrolled in Medicaid: United States, California, and MSAs of the SJV, 1988-2003

	1988-1990	1998-2000	2001-2003
SJV	20.6%	24.2% [a]	22.9%
Bakersfield (Kern County)	17.9%	23.9%	20.0%
Fresno (Fresno County 1989-1991; Fresno and Madera Counties later years)	23.5%	24.0%	25.1%
Merced (Merced County)		25.1%	25.0%
Modesto (Stanislaus County)	14.9%	19.9%	16.2%
Stockton-Lodi (San Joaquin County)	24.4%	22.8%	17.8%
Visalia-Tulare-Porterville (Tulare County)	21.1%	30.4%	34.0%
California	11.0%	13.2%	14.4%
United States	8.3%	10.3%	11.7%

Sources: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects health insurance information for the previous year.

Notes: The estimates from the March CPS of the number of Medicaid enrollees are lower than the count of Medicaid enrollees from administrative records. In order to increase the sample sizes for each MSA, all estimates are three-year averages. An MSA consists of an urban center (or centers) and adjacent communities that have a high degree of economic and social integration.

a. Data for 1998 and later years may not be comparable to data for 1988-1990. Data for 1998 and later years include an MSA for Merced County. For 1998 and later, the Fresno MSA includes both Fresno and Madera counties.

Table 24. Percent of the Population Enrolled in Medicaid: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1988-2003

	1988-1990	1998-2000	2001-2003
Central ARC Counties	NA	NA	NA
Kentucky	9.0%	10.2%	12.7%
Tennessee	11.6%	18.0%	18.0%
Virginia	6.4%	5.1%	7.3%
West Virginia	10.0%	14.4%	16.3%
United States	8.3%	10.3%	11.7%

Sources: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects health insurance information for the previous year.

Notes: The estimates from the March CPS of the number of Medicaid enrollees are lower than the count of Medicaid enrollees from administrative records. In order to increase the sample sizes for each state, all estimates are three-year averages.

County and Regional Employment and Income Measures. The number of employed persons 16 and over has increased in the SJV from 813,000 in 1980 to 1.22 million in 2000 (**Table 25**), an increase of 49.8% and much higher than for California during that time period (38.3%). The largest absolute increase was in Fresno County (87,000) and San Joaquin County (83,000), followed by Kern County (70,000) and Stanislaus County (68,000). Mariposa and Tuolumne counties saw increased total employment during that time of 3,000 and 8,000 respectively. Those persons counted as employed may be employed with full or part-time jobs or hold more than one job. In the 68 Central Appalachian counties, the number of employed persons 16 and over increased from 562,000 in 1980 to 634,000 in 2000, an increase of 12.8%, a significantly lower rate than observed in the SJV (**Table 26**). Most of that 72,000 increase in employed persons occurred between 1990 and 2000.

The labor force participation rate estimates the number of 16-and-over persons in the labor force divided by the size of the corresponding population. The labor force participation rate in the SJV declined from 60.5% in 1980 to 58.6% in 2000 **(Table 27**). The participation rate declined or increased only sightly in each SJV county, 1980-2000. Between 1980 and 1990, California's labor force participation

rate increased somewhat, as did the United States, but both fell between 1990 and 2000. Between 2000-2003, labor participation rates in the SJV increased somewhat, with Kern and San Joaquin county participation rates increasing the most in percentage terms. Mariposa County increased from 55.0% to 57.7% between 1980 and 2000. Tuolumne County fell from a rate of 52.0% to 49.4%. In contrast to the SJV, the Central Appalachia counties saw increases in their labor force participation rate over the 1980-2000 period, from 47.8% to 49.2% (**Table 28**). The rates in each of the respective states also increased during that time frame and from 2000-2003 as well.

For persons 16 and over, the SJV civilian unemployment rate grew from 9.5% 1980 to 11.9% in 2000 (**Table 29**). The rate for California over that period increased from 6.5% to 7.0%. In the United States, the civilian unemployment rate fell from 6.5% in 1980 to 5.8% in 2000, although the rates for both California and the United States increased from 2000-2003. Each county within the SJV, except Stanislaus County, saw increases in their unemployment rates between 1980-1990, and 1990-2000. Stanislaus County saw a decline in its employment rate, from 12.7% in 1980 to 10.0% in 1990, to 11.7% in 2000. Unemployment also fell in Fresno, Kern, Stanislaus, and Tulare counties between 2000 and 2003. In the Central Appalachian counties, the unemployment rate fell from 10.6% in 1980 to 8.2% in 2000 (**Table 30**). Kentucky and West Virginia had the highest unemployment rates in 1980 and, although they fell between 1980 and 2000, they still had the highest rates among the four states. Although each of the states also saw increases in their unemployment rates since 2000, Central Appalachia had higher unemployment rates than any of the respective states.

Table 25. Employment in the United States, California, and the Counties of the SJV, 1980-2003

(number of persons 16 and over, in 1000s)

	1980	1990	2000	2003
SJV	813	1,082	1,218	NA
Fresno	214	270	301	340
Kern	162	215	232	271
Kings	26	33	40	
Madera	24	33	42	
Merced	49	66	75	
San Joaquin	136	196	219	261
Stanislaus	106	151	174	199
Tulare	95	119	134	152
Adjacent counties				
Mariposa	4	6	7	
Tuolumne	12	18	20	
California	10,640	13,996	14,719	15,638
United States	97,639	115,681	129,722	132,422

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov];U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Notes: Data refer to the number of persons employed. A person may be employed full-time or part-time or hold more than one job. The Census Bureau considers people over the age of 16 to be employed if they are either "at work" or "with a job, but not at work." "At work" refers to people who did any work during the reference week as paid employees, worked in their own business or profession, worked on their own farm, or worked 15 hours or more as unpaid workers on a family farm or in a family business. "With a job, but not at work" includes people who did not work during the reference week, but had jobs or businesses from which they were temporarily absent. Excluded from the employed are people whose only activity consisted of repair work or housework around their homes or unpaid volunteer work for religious or charitable organizations. Also excluded are people on active duty in the U.S. Armed Forces. The reference week is the full calendar week proceeding the date on which the respondent completed the census questionnaire. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 26. Employment in the United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

(number of persons 16 and over, in 1000s)

	1980	1990	2000	2003
Central ARC Counties	562	580	634	NA
Kentucky	1,388	1,564	1,798	1,770
Tennessee	1,915	2,251	2,652	2,715
Virginia	2,348	3,028	3,413	3,524
West Virginia	689	671	733	723
United States	97,639	115,681	129,722	132,422

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov];U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Notes: Data refer to the number of persons employed. A person may be employed full-time or part-time or hold more than one job. The Census Bureau considers people over the age of 16 to be employed if they are either "at work" or "with a job, but not at work." "At work" refers to people who did any work during the reference week as paid employees, worked in their own business or profession, worked on their own farm, or worked 15 hours or more as unpaid workers on a family farm or in a family business. "With a job, but not at work" includes people who did not work during the reference week, but had jobs or businesses from which they were temporarily absent. Excluded from the employed are people whose only activity consisted of repair work or housework around their homes or unpaid volunteer work for religious or charitable organizations. Also excluded are people on active duty in the U.S. Armed Forces. The reference week is the full calendar week proceeding the date on which the respondent completed the census questionnaire.

Table 27. Labor Force Participation Rate: United States, California, and the Counties of the SJV, 1980-2003

(persons 16 and over)

	1980	1990	2000	2003
SJV	60.5%	61.6%	58.6%	NA
Fresno	61.7%	62.5%	59.8%	63.2%
Kern	60.7%	62.0%	56.2%	63.0%
Kings	60.1%	53.9%	49.3%	
Madera	59.0%	59.5%	53.5%	
Merced	60.6%	62.2%	59.5%	
San Joaquin	58.5%	60.9%	59.8%	64.9%
Stanislaus	61.7%	62.8%	61.2%	61.9%
Tulare	59.3%	61.1%	59.8%	62.6%
Adjacent counties				
Mariposa	55.0%	55.5%	57.7%	
Tuolumne	52.0%	49.3%	49.4%	
California	63.7%	66.6%	62.2%	65.2%
United States	61.6%	64.9%	63.7%	65.9%

Sources:. U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: The labor force participation rate is the number of persons in the labor force divided by the size of the corresponding population. The labor force includes all persons classified as being in the civilian labor force (that is, "employed" and "unemployed" persons), plus members of the U.S. Armed Forces — people on active duty in the Army, Air Force, Navy, Marine Corps, and Coast Guard. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 28. Labor Force Participation Rate: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

(persons 16 and over)

	1980	1990	2000	2003
Central ARC Counties	47.8%	49.6%	49.2%	NA
Kentucky	56.6%	60.1%	60.7%	61.5%
Tennessee	60.2%	63.8%	63.3%	65.5%
Virginia	62.9%	67.8%	66.0%	67.9%
West Virginia	51.6%	52.9%	54.4%	55.4%
United States	61.6%	64.9%	63.7%	65.9%

Sources:. U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: The labor force participation rate is the number of persons in the labor force divided by the size of the corresponding population. The labor force includes all persons classified as being in the civilian labor force (that is, "employed" and "unemployed" persons), plus members of the U.S. Armed Forces — people on active duty in the Army, Air Force, Navy, Marine Corps, and Coast Guard. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 29. Civilian Unemployment Rates: United States, California, and the Counties of the SJV, 1980-2003

(persons 16 and over)

	1980	1990	2000	2003
SJV	9.5%	9.8%	11.9%	NA
Fresno	8.9%	9.5%	11.8%	11.0%
Kern	7.7%	9.7%	12.0%	11.0%
Kings	8.8%	10.7%	13.6%	
Madera	10.2%	11.9%	13.2%	
Merced	11.0%	10.6%	13.1%	
San Joaquin	10.2%	8.8%	10.3%	10.4%
Stanislaus	12.7%	10.0%	11.7%	10.5%
Tulare	8.6%	10.7%	12.7%	10.5%
Adjacent counties				
Mariposa	8.3%	6.7%	14.1%	
Tuolumne	12.5%	7.6%	7.7%	
California	6.5%	6.6%	7.0%	8.5%
United States	6.5%	6.3%	5.8%	7.6%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Employment status is for persons 16 and over and refers to the week preceding the date the census questionnaire was competed. The Census Bureau classifies civilians 16 years old and over as unemployed if they (1) were not employed at a job during the reference week, and (2) were looking for work during the last four weeks, and (3) were available to start a job. Also included as unemployed are civilians 16 years old and over who did not work at all during the reference week, or who were waiting to be called back to a job from which they had been laid off, or who were available for work except for temporary illness. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 30. Civilian Unemployment Rates: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

(persons 16 and over)

	1980	1990	2000	2003
Central ARC Counties	10.6%	11.1%	8.2%	NA
Kentucky	8.5%	7.4%	5.7%	7.5%
Tennessee	7.4%	6.4%	5.5%	6.9%
Virginia	5.0%	4.5%	4.2%	5.7%
West Virginia	8.4%	9.6%	7.3%	8.4%
United States	6.5%	6.3%	5.8%	7.6%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Employment status is for persons 16 and over and refers to the week preceding the date the census questionnaire was competed. The Census Bureau classifies civilians 16 years old and over as unemployed if they (1) were not employed at a job during the reference week, and (2) were looking for work during the last four weeks, and (3) were available to start a job. Also included as unemployed are civilians 16 years old and over who did not work at all during the reference week, or who were waiting to be called back to a job from which they had been laid off, or who were available for work except for temporary illness.

Per Capita Income. Per capita income in the SJV grew 133% between 1980 and 2000, from $6,780 to $15,798. The SJV's per capita income rose to 73% of the national per capita income in 2000 (**Table 31**). This gain was less than the per capita income growth during that time for California (174%) and the United States (196%) (**Table 31**). (Per capita income among the SJV counties for which there are data continued to grow between 2000-2003). Kings County's per capita income growth was the highest in the SJV, increasing from $5,843 in 1980 to $15,848 in 2000, a 171% increase. Mariposa County's per capita income growth was 172%, increasing from $6,676 in 1980 to $18,190 in 2000. Tuolumne County's growth was even higher at 212%. According to the U.S. Bureau of Economic Analysis, Madera was among the 10 lowest MSAs in terms of per capita personal income in 2003, ranking 353rd out of a total of 361 MSAs. The other five MSAs in the SJV also ranked low in per capita personal income compared to other U.S. metropolitan areas: Bakersfield

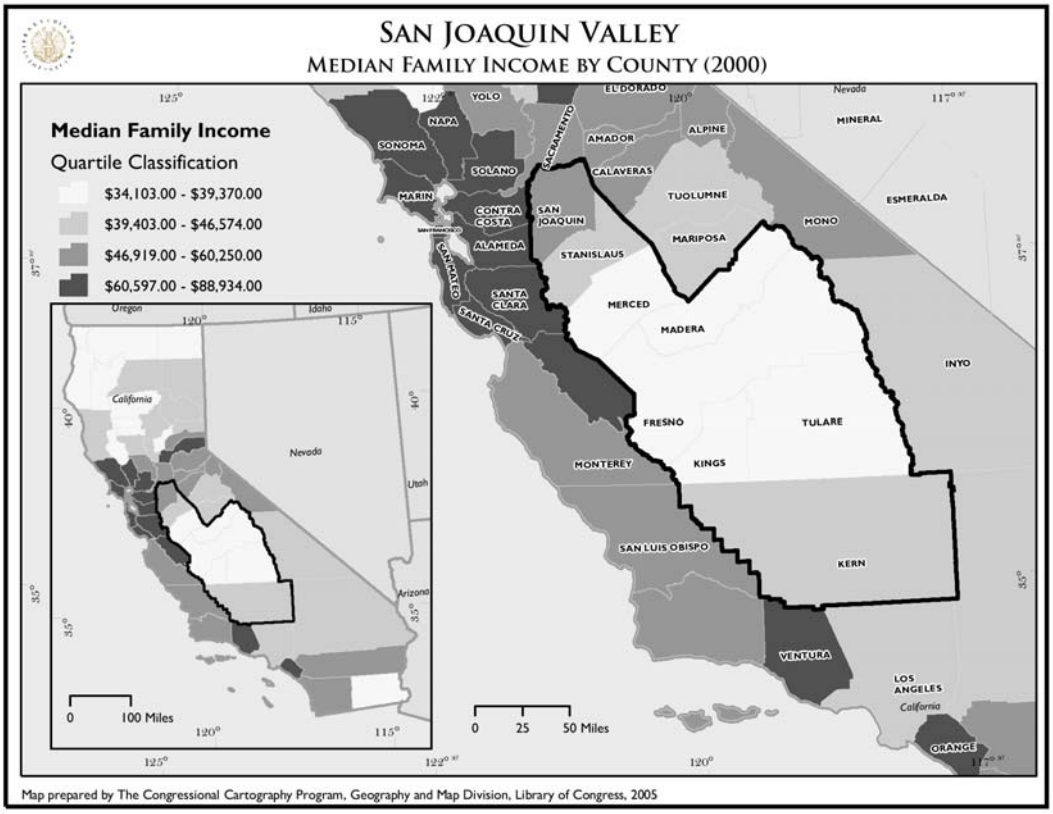
(338th), Fresno (310th), Modesto (311th), Stockton (304th), Visalia-Tulare-Porterville (346th).[58]

For the Central Appalachian counties, per capita income grew from $5,087 in 1980 to $13,911 in 2000, almost 14% less in dollar terms than the SJV, but a total increase of 173% compared to 133% in the SJV (**Table 32**). Per capita market income in the ARC defined area, however, was $19,736 in 2000, about 77% of the national average (**Table 1**).

Median Family Income. Family income is the sum of income received by all family members in a household. In each of the SJV counties, median family income better than doubled between 1980 and 2000, although all SJV counties, with a range from $36,297 to $46,919, were below the 2000 national median family income level ($50,046) and that of California ($53,025) **(Table 33**). The two adjacent counties (Mariposa and Tuolumne) also had 2000 median family income levels lower than both California and the national level. San Joaquin County had the highest median family income in 2000 ($46,919) followed by Stanislaus County ($44,703). Between 2000-2003, San Joaquin grew to $50,922, still slightly higher than Stanislaus County ($49,431). California's median family income grew 146% between 1980 and 2000, from $21,537 to $53,025. Between 2000 and 2003, California's median family income grew to $56,530. On average, median family income in the SJV in 2000 was approximately $13,000 less than the median family income of California (**Figure 6**).

[58] U.S. Bureau of Economic Analysis, April, 2005. [http://www.bea.gov/bea/newsrel] /MPINewsRelease.htm.

Figure 6. Median Family Income By County



Data Source: U.S. Bureau of the Census

Aggregate data on median family income across the 68 Central Appalachian counties were not available. A 2004 study of health conditions in the ARC, however, calculated median family incomes for the 410-county Appalachian region.[59] For Appalachian counties, median family income ranged from $11,110 to $48,000 in 1990. The median family income for non-Appalachian U.S. counties ranged from $10,903 to $65,201. The high end of median family income in the ARC was higher than for any SJV county, California, or the United States. In 2000 the median family income for non-Appalachian U.S. counties ranged from $14,167 to $97,225. For Appalachian counties, median family income ranged from $18,034 to $74,003 in 2000. Given the high proportion of Distressed counties among the Central Appalachian counties (45 of the 68), median family income is more likely to be at the lower end of the above ranges for both 1990 and 2000. If so, median family income in Central Appalachia was likely lower in 1990 and 2000 than it was in the SJV. In 2000, median family incomes for the four Appalachian states ranged from $36,484 to $56,169 (**Table 34**). For the SJV, median family income ranged from $36,297 to $46,919 in 2000.

---

[59] Havel, Joel. *An Analysis of Disparities in Health Care Status and Access to Health Care in the Appalachian Region*. Washington, D.C.: ARC, September, 2004. Report available at [http://www.arc.gov/index.do?nodeId=2376].

Average Family Income. Median family income measures the point where 50% of the families has a greater amount of income and 50% has a lesser amount of income. Although a median family income value could not be calculated for the entire 68-county Central Appalachian area or the SJV, calculating average family income is possible. If there is high family income variance among families within a particular geographic area, however, the average family income figure will be biased, (i.e., a few very high income families in a region of largely poor families portrays a higher regional family average). Less variance among family incomes will make an average figure a more accurate portrayal of a region's family income level.

In 2000, the average family income in the SJV was $52,854, a 144% increase from 1980 and a 37% increase from 1990 (**Table 35)**. At $63,541, San Joaquin County had the highest average family income in 2003 of the counties for which data were available. Average income in each county grew significantly between 1980 and 2000. Income between 1980 and 2000 grew 134% in Fresno County,132 % in Kern County, 157% in Kings County, 148% in Madera County, 142% in Merced County, 165% in San Joaquin County, 151% in Stanislaus County, and 142% in Tulare County. During the same time span, average family income grew in California by 182 %, about the same rate as that for the United States (180%) but much higher than the SJV's rate of 144%. By 2000, average income for the SJV was 73.4% of California's average family income ($52,854 vs. $71,951).

Central Appalachia's average family income in 2000 was $39,503, about 75% of the average family income in the SJV (**Table 36**). In 1980, Central Appalachia's average family income was 22.7 % lower than the SJV's average, and in 1990, it was 31.6 % lower than the average in the SJV. Central Appalachia's average income grew 136% between 1980 and 2000, somewhat less than the growth rate for the SJV (144%). West Virginia, with the lowest per capita income and the lowest median family income (**Table 33** and **Table 34**), also had the lowest average family income in 2000 ($46,501). Average family income growth in the state between 1980 and 2000 was 136%, the same rate as the 68-county region as a whole. Kentucky, with the second lowest growth rate, grew 172%. Virginia and Tennessee both saw rates of average income growth greater than the United States and California (198% and 186% respectively).

Income Sources. Total household incomes can come from multiple sources, but wages and salaries comprise the largest source of household income. Over three-quarters of SJV households have income from wage and salaries (**Table 37**). Average wage and salary income in 1980 was $18,009 and increased to an average of $45,904 in the SJV in 2000, an increase of 155%. California had a slightly higher percentage of its households reporting wage and salary income in 2000 than the SJV, and the average amounts in 1980-2003 were higher than they were for the SJV. Kings County had the highest percentage of wage and salary households (80.6%) in 2000, although San Joaquin County had the highest average amount ($50,694). Tulare had the smallest average amount of wage and salary income in the SJV in 2000 ($41,990), although the percentage of households reporting wage and salary income was about the same as for the SJV. Both Mariposa and Tuolumne counties had only about 64% of households reporting income from wages and salaries, averaging $39,877 and $43,589 respectively in 2000.

In Central Appalachia, far fewer households than in the SJV reported receiving wage and salary income (**Table 38**). The percent of households with wage and salary income fell slightly from 65.1% in 1990 to 63.4% in 2000. The average amount of wage and salary income in Central Appalachia was $35,815 in 2000, $10,000 less than the average in the SJV. Of the Appalachian states, only Virginia had a proportion of households with wage and salary income greater than the United States between 1980-2003. The four Appalachian states together had an average of $47,330 in wage and salary income compared to an average of $45,326 among the eight SJV counties. Virginia, with a wealthy northern region lying outside Appalachia, skewed the income distribution.

Other sources of household income include interest, dividend, or net rental (IDR) and retirement incomes, (e.g., pensions, Individual Retirement Accounts, and workers' compensation). In 2000, 26.2% of SJV households reported income from IDR (**Table 39**). The average amount of that income increased to $10,104 in 2000, rising from $3,237 in 1980. The percent of households reporting IDR income fell steadily from 1980 to 2003. The Census reported 2003 data for four SJV counties; each had fallen to less than 20% of households reporting IDR income. The proportion of California households and United States households reporting IDR income also fell, although not as much as the SJV. The proportion of households in the SJV who reported receiving retirement income rose between 1990 and 2000 (**Table 40**). For all but one county (Tulare), the SJV counties for which there are 2003 data also saw increases in the proportion of households with retirement income between 2000 and 2003. Retirement income does not include Social Security, so the sources are from workers' compensation, pensions, disability income, and income from an IRA or similar plan. In 2000, the average amount of income from retirement sources in the SJV was $15,425. Tulare County had the lowest average amount ($14,558) and San Joaquin had the highest ($16,502). In 2003, Fresno had the highest average amount of retirement income among those households who reported receiving retirement income.

The percentage of SJV households reporting Social Security income remained fairly stable from 1980-2000, with approximately 25% of households receiving Social Security income (**Table 41**). The average amount received in 2000 was $10,825 compared to $11,331 in California and $11,320 in the United States. The proportion of California households reporting Social Security income is somewhat less than for the SJV. The percentage of households in Mariposa and Tuolumne receiving income from Social Security in 2000 was 37.5% and 38.5% respectively. The proportions of households in these two counties receiving Social Security is higher, and for Tuolumne the average amount received is about $1,500 more, than the average amount received in the SJV. Reflecting the higher proportion of elderly in rural counties nationally and Central Appalachian particularly, the percent of households receiving Social Security income in Central Appalachia was nearly 36% in 2000 (**Table 42**). Average amounts of Social Security income were lower than those for the SJV. Average amounts for the four Appalachian states were, with the exception of Virginia, lower on average than the eight SJV counties.

For those who are at least 65 years old, or blind, or disabled and are U.S. citizens or one of certain categories of aliens, Supplemental Security Income (SSI) provides low-income individuals with cash assistance. In 2000, 7.6% of SJV

households had SSI with an average payment of $6,704 **(Table 43**). This amount is slightly less than the figure for California, and slightly more than the figure for the United States. The proportion of households with SSI in California and the United States is lower than the proportion of households in the SJV, 5.3% and 4.4% respectively. In 2003, San Joaquin and Fresno counties had 9.5% and 8.2% respectively of their households receiving SSI. This was an increase from 2000. In Central Appalachia, the percentage of households receiving SSI in 2000 was higher than it was in the SJV **(Table 44**). The proportion of households in the four Appalachian states receiving SSI was somewhat lower than in the eight counties of the SJV, but Central Appalachia had 11.6% of its households receiving SSI in 2000. Average amounts received in Central Appalachia, $5,827, were also lower than the average amounts received by SJV households.

Table 31. Per Capita Income: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV [a]	$6,780	$11,817	$15,798	NA
Fresno	$6,967	$11,824	$15,495	$17,377
Kern	$6,990	$12,154	$15,760	$16,845
Kings	$5,843	$10,035	$15,848	
Madera	$6,361	$10,856	$14,682	
Merced	$6,267	$10,606	$14,257	
San Joaquin	$7,016	$12,705	$17,365	$19,852
Stanislaus	$7,094	$12,731	$16,913	$19,181
Tulare	$6,038	$10,302	$14,006	$15,431
Adjacent counties				
Mariposa	$6,676	$13,074	$18,190	
Tuolumne	$6,745	$13,224	$21,015	
California	$8,295	$16,409	$22,711	$24,420
United States	$7,298	$14,420	$21,587	$23,110

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

a. Per capita income for the SJV was calculated as follows: For each of the eight counties, per capita income was multiplied by population. The sum of these results was divided by the total population for the counties.

Table 32. Per Capita Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	1980	1990	2000	2003
Central ARC Counties [a]	$5,087	$8,715	$13,911	NA
Kentucky	$5,978	$11,153	$18,093	$18,587
Tennessee	$6,213	$12,255	$19,393	$20,792
Virginia	$7,478	$15,713	$23,975	$26,362
West Virginia	$6,141	$10,520	$16,477	$17,325
United States	$7,298	$14,420	$21,587	$23,110

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

a. Per capita income for the 68 counties in the central ARC was calculated as follows: For each of the counties, per capita income was multiplied by population. The sum of these results was divided by the total population for the counties.

Table 33. Median Family Income: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV	NA	NA	NA	NA
Fresno	$18,396	$29,970	$38,455	$42,079
Kern	$18,780	$31,714	$39,403	$45,801
Kings	$16,164	$27,614	$38,111	
Madera	$17,327	$30,246	$39,226	
Merced	$16,513	$28,269	$38,009	
San Joaquin	$19,116	$34,701	$46,919	$50,922
Stanislaus	$18,652	$32,923	$44,703	$49,431
Tulare	$16,166	$26,697	$36,297	$38,464
Adjacent counties				
Mariposa	$15,833	$29,468	$42,655	
Tuolumne	$16,907	$31,464	$44,327	
California	$21,537	$40,559	$53,025	$56,530
United States	$19,917	$35,225	$50,046	$52,273

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 34. Median Family Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	1980	1990	2000	2003
Central ARC Counties	NA	NA	NA	NA
Kentucky	$16,444	$27,028	$40,939	$41,898
Tennessee	$16,564	$29,546	$43,517	$46,654
Virginia	$20,018	$38,213	$54,169	$60,174
West Virginia	$17,308	$25,602	$36,484	$38,568
United States	$19,917	$35,225	$50,046	$52,273

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Table 35. Average Family Income: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV	$21,649	$38,607	$52,854	NA[a]
Fresno	$22,332	$38,843	$52,247	$53,639
Kern	$22,070	$38,812	$51,273	$53,271
Kings	$19,316	$34,318	$49,728	
Madera	$20,642	$35,730	$51,112	
Merced	$20,365	$36,059	$49,349	
San Joaquin	$21,940	$41,340	$58,108	$63,541
Stanislaus	$22,303	$40,705	$55,910	$60,158
Tulare	$20,042	$34,564	$48,595	$51,052
Adjacent counties				
Mariposa	$18,776	$36,197	$52,270	
Tuolumne	$19,440	$38,551	$57,064	
California	$25,540	$51,198	$71,951	$73,826
United States	$23,092	$43,803	$64,663	$66,920

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Income consists of money income and includes earnings, interest, dividends, retirement income, veterans' payments, public assistance, unemployment compensation, child support, alimony, and other income.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 36. Average Family Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the Appalachian Regional Commission (ARC), 1980-2003

	1980	1990	2000	2003
Central ARC Counties	$16,737	$26,403	$39,503	NA[a]
Kentucky	$19,192	$33,386	$52,124	$51,783
Tennessee	$19,616	$36,478	$56,166	$58,067
Virginia	$23,443	$46,710	$69,869	$75,763
West Virginia	$19,668	$31,290	$46,501	$48,111
United States	$23,092	$43,803	$64,663	$66,920

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Income consists of money income and includes earnings, interest, dividends, retirement income, Veterans' payments, public assistance, unemployment compensation, child support, alimony, and other income.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 37. Wage and Salary Income: United States, California, and the Counties of the SJV, 1980-2003

	1980		1990		2000		2003	
	Percent of households with wage and salary income	Average amount	Percent of households with wage and salary income	Average amount	Percent of households with wage and salary income	Average amount	Percent of households with wage and salary income	Average amount
SJV	76.3%	$18,009	75.9%	$33,351	77.0%	$45,904	NA	NA
Fresno	77.6%	$18,167	75.8%	$32,666	77.3%	$44,592	77.8%	$48,379
Kern	76.8%	$19,004	76.9%	$34,718	75.7%	$45,332	76.9%	$48,272
Kings	79.1%	$16,176	78.1%	$29,727	80.6%	$44,849		
Madera	74.1%	$17,370	72.6%	$30,651	74.2%	$44,790		
Merced	77.5%	$16,317	76.4%	$30,388	77.9%	$42,238		
San Joaquin	74.5%	$18,504	75.7%	$35,947	77.2%	$50,694	80.7%	$55,551
Stanislaus	76.0%	$18,408	76.4%	$34,903	77.3%	$48,124	78.1%	$50,873
Tulare	74.5%	$16,334	73.6%	$29,547	76.9%	$41,990	76.5%	$47,151
Adjacent counties								
Mariposa	63.8%	$15,242	65.3%	$29,133	63.7%	$39,877		
Tuolumne	67.5%	$16,272	66.0%	$31,533	63.6%	$43,589		
California	78.4%	$21,283	79.2%	$43,346	78.7%	$61,374	77.6%	$64,351
United States	77.7%	$19,796	77.4%	$37,271	77.7%	$54,358	77.0%	$57,161

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 38. Wage and Salary Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	1980		1990		2000		2003	
	Percent of households with wage and salary income	Average amount	Percent of households with wage and salary income	Average amount	Percent of households with wage and salary income	Average amount	Percent of households with wage and salary income	Average amount
Central ARC Counties	68.8%	$15,824	65.1%	$24,997	63.4%	$35,815	NA	NA
Kentucky	74.6%	$17,024	73.3%	$29,444	73.6%	$44,638	72.4%	$45,604
Tennessee	77.5%	$17,096	76.5%	$31,457	76.6%	$46,926	76.0%	$48,895
Virginia	82.2%	$19,987	81.9%	$39,615	81.2%	$57,889	80.0%	$63,933
West Virginia	72.5%	$17,793	67.5%	$28,261	68.2%	$39,870	67.1%	$42,785
United States	77.7%	$19,796	77.4%	$37,271	77.7%	$54,358	77.0%	$57,161

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Table 39. Interest, Dividend, or Net Rental Income: United States, California, and the Counties of the SJV, 1980-2003

	1980		1990		2000		2003	
	Percent of households with interest, dividend, or net rental income	Average amount	Percent of households with interest, dividend, or net rental income	Average amount	Percent of households with interest, dividend, or net rental income	Average amount	Percent of households with interest, dividend, or net rental income	Average amount
SJV	34.3%	$3,237	30.8%	$6,949	26.2%	$10,104		
Fresno	35.7%	$3,242	31.7%	$7,478	26.8%	$10,224	17.2%	$10,261
Kern	34.5%	$3,158	28.9%	$6,072	25.0%	$9,507	16.1%	$6,567
Kings	29.9%	$2,667	26.3%	$6,379	24.6%	$11,004		
Madera	25.5%	$3,202	31.7%	$6,813	24.9%	$11,549		
Merced	34.1%	$3,279	30.3%	$6,282	24.7%	$9,757		
San Joaquin	35.4%	$3,191	32.7%	$6,955	28.1%	$10,477	19.8%	$8,409
Stanislaus	36.7%	$3,198	32.2%	$7,382	27.7%	$9,879	18.7%	$8,109
Tulare	30.1%	$3,662	29.2%	$7,225	23.6%	$10,026	13.6%	$12,398
Adjacent counties								
Mariposa	40.7%	$3,262	36.7%	$7,343	35.5%	$11,561		
Tuolumne	33.9%	$3,287	40.0%	$7,908	40.3%	$12,476		
California	41.2%	$3,770	39.8%	$9,021	35.0%	$14,208	25.6%	$13,654
United States	41.4%	$2,994	40.5%	$6,949	35.9%	$10,677	26.3%	$10,184

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 40. Retirement Income: United States, California, and the Counties of the SJV, 1980-2003

	1990		2000		2003	
	Percent of households with retirement income	Average amount	Percent of households with retirement income	Average amount	Percent of households with retirement income	Average amount
SJV	14.7%	$8,838	15.7%	$15,425		
Fresno	13.2%	$8,906	14.2%	$15,414	17.1%	$17,933
Kern	14.7%	$9,334	15.9%	$15,744	16.3%	$16,697
Kings	14.6%	$9,027	15.3%	$15,607		
Madera	17.8%	$9,791	17.5%	$15,533		
Merced	15.3%	$9,154	16.4%	$15,703		
San Joaquin	16.2%	$8,865	17.1%	$16,052	19.7%	$15,810
Stanislaus	15.2%	$8,109	16.3%	$14,567	18.2%	$17,377
Tulare	13.5%	$8,051	14.6%	$14,558	14.5%	$14,270
Adjacent counties						
Mariposa	26.0%	$11,426	24.3%	$19,440		
Tuolumne	26.4%	$10,329	29.1%	$18,357		
California	14.9%	$10,409	15.4%	$18,826	15.3%	$18,919
United States	15.6%	$9,216	16.7%	$17,376	17.0%	$17,005

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

Note: Retirement income includes pensions and survivor benefits; income from workers' compensation; disability income; and regular income from an Individual Retirement Account (IRA) or similar plan. Income from Social Security is not included. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 41. Social Security Income: United States, California, and the Counties of the SJV, 1980-2003

	1980		1990		2000		2003	
	Percent of households with social security income	Average amount	Percent of households with social security income	Average amount	Percent of households with social security income	Average amount	Percent of households with social security income	Average amount
SJV	25.0%	$4,063	24.6%	$7,586	24.6%	$10,825	NA	NA
Fresno	23.6%	$4,018	23.9%	$7,548	23.6%	$10,801	25.0%	$11,778
Kern	25.0%	$4,117	23.7%	$7,611	24.8%	$10,877	25.1%	$11,550
Kings	22.5%	$3,981	21.7%	$7,180	22.0%	$10,486		
Madera	26.7%	$4,118	29.7%	$7,709	29.0%	$11,041		
Merced	22.8%	$3,887	23.4%	$7,466	24.0%	$10,204		
San Joaquin	25.9%	$4,132	25.3%	$7,736	24.6%	$11,064	23.2%	$12,480
Stanislaus	25.8%	$4,053	24.9%	$7,627	25.1%	$10,960	25.1%	$11,715
Tulare	27.3%	$4,058	26.9%	$7,465	25.3%	$10,575	26.4%	$11,516
Adjacent counties								
Mariposa	35.5%	$4,223	34.4%	$7,556	37.5%	$10,685		
Tuolumne	32.1%	$4,387	36.9%	$8,404	38.5%	$12,284		
California	22.1%	$4,182	21.9%	$7,957	22.3%	$11,331	23.5%	$12,588
United States	25.9%	$4,094	26.3%	$7,772	25.7%	$11,320	26.6%	$12,651

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 42. Social Security Income: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	1980		1990		2000		2003	
	Percent of households with social security income	Average amount	Percent of households with social security income	Average amount	Percent of households with social security income	Average amount	Percent of households with social security income	Average amount
Central ARC Counties	32.4%	$3,779	33.8%	$6,858	35.9%	$10,029	NA	NA
Kentucky	28.5%	$3,765	28.9%	$6,985	28.5%	$10,293	29.7%	$11,498
Tennessee	27.7%	$3,695	27.3%	$7,060	26.5%	$10,655	27.8%	$12,198
Virginia	23.4%	$3,836	22.8%	$7,223	23.4%	$10,868	24.8%	$12,405
West Virginia	32.0%	$4,114	34.4%	$7,533	33.9%	$10,931	35.1%	$12,283
United States	25.9%	$4,094	26.3%	$7,772	25.7%	$11,320	26.6%	$12,651

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Table 43. Supplemental Security Income (SSI): United States, California, and the Counties of the SJV, 2000-2003

	2000		2003	
	Percent of households with SSI income	Average amount	Percent of households with SSI income	Average amount
SJV	7.6%	$6,704	NA	NA
Fresno	7.8%	$6,792	8.2%	$7,310
Kern	7.5%	$6,428	4.7%	$5,446
Kings	7.6%	$6,066		
Madera	6.6%	$6,540		
Merced	7.7%	$6,616		
San Joaquin	7.3%	$7,000	9.5%	$8,435
Stanislaus	7.6%	$7,061	5.8%	$7,345
Tulare	7.9%	$6,392	7.4%	$6,549
Adjacent counties				
Mariposa	5.4%	$6,761		
Tuolumne	6.6%	$6,241		
California	5.3%	$6,990	4.7%	$7,770
United States	4.4%	$6,320	3.9%	$6,731

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 44. Supplemental Security Income (SSI): United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 2000-2003

	2000		2003	
	Percent of households with SSI income	Average amount	Percent of households with SSI income	Average amount
Central ARC Counties	11.6%	$5,827	NA	NA
Kentucky	7.2%	$5,809	6.2%	$6,186
Tennessee	5.2%	$5,823	4.1%	$5,992
Virginia	3.5%	$5,770	3.0%	$5,984
West Virginia	6.9%	$5,974	6.3%	$6,182
United States	4.4%	$6,320	3.9%	$6,731

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

County and Regional Educational Measures. Human capital refers generally to the level of education and training of a defined group (e.g., population or labor force) and is important because of the direct relationship between educational attainment and earnings.[60] The demand for workers with at least some post-secondary education has been increasing in recent decades and is projected to rise.[61] The SJV has a disproportionate share of low-skilled and poorly educated workers, a significant percentage of whom are farmworkers. Raising the levels of training and education is a major challenge facing the SJV. Improvements in educational attainment and higher-level job skills are a practical necessity for the SJV if it is to move its economy toward new competitive advantage over the coming decades.

Table 45 shows that in 2000, 32.8% of those 18 and older in the SJV had less than a high school education, down slightly from 34.3% in 1990. The proportion of high school graduates without any post secondary education in 2000 was 25.1%, higher than the proportion of high school graduates in California, but somewhat lower than the rate in the United States (28.6%). It is the proportion of the population with less than a high school education that is most pronounced in the SJV. In California, 24% had less than high school educations, while most SJV counties had rates above 30%. **Figure 7** maps by county the percentage of Californians with less than high school and shows that the SJV is overly represented by that category. **Figure 8** further maps by county the percentage of the population with a bachelor's or higher degree. In this category, the SJV is under-represented when compared to California's other counties. California had nearly 24% of its population 18 and older with bachelors degrees in 2000. In the SJV, the proportion was less than 12.5%. In the category of 1-3 years of college, however, the SJV at 39.8% was higher than the national average of 28.8%. The SJV rate was somewhat lower than the state's rate of 1-3 years of college. For Mariposa and Tuolumne counties, the high school graduate proportions were higher, the less than high school proportions were lower, and the 1-3 years of college proportion and college graduates were higher than the SJV.

In Central Appalachia, the proportion of population 18 and older with less than high school in 2000 was higher than the rate in the SJV (**Table 46**) (35.4% vs. 32.8%). The proportion of high school graduates in 2000 was higher (34.9%) than it was in the SJV (25.1%) and the United States (28.6%), but the proportion of 1-3 years of college was much lower in Central Appalachia (20.4%) than it was in the SJV (29.8%). This may reflect the number and proximity of California institutions of higher education compared to that of Central Appalachia. If this is a factor, it is further seen in the proportion of Central Appalachians with a bachelor's or advanced degree. While the rate in 2000 in the SJV was 12.4%, in Central Appalachia the proportion of those with bachelors or advanced degrees was 9.4%, up from 7.6% in 1990. With the exception of Virginia, the Appalachian states each had lower proportions of their population with a bachelors or advanced degree than the United States or the state of California.

---

[60] See CRS Report 95-1081, *Education Matters: Earnings by Educational Attainment over Three Decades.*

[61] See CRS Report 97-764, *The Skill (Education) Distribution of Jobs: How Is It Changing?*

Table 45. Educational Attainment: United States, California, and Counties of the SJV, 1990-2003

(persons 18 and over)

	1990	2000	2003
SJV			
Less than High School	34.3%	32.8%	NA
High School Graduate	24.9%	25.1%	NA
1- 3 Years of College	28.7%	29.8%	NA
Bachelor's or Advanced Degree	12.1%	12.4%	NA
Fresno County			
Less than High School	34.2%	32.9%	26.4%
High School Graduate	21.9%	21.9%	27.0%
1- 3 Years of College	28.9%	29.9%	30.9%
Bachelor's or Advanced Degree	15.0%	15.3%	15.8%
Kern County			
Less than High School	33.5%	32.3%	27.5%
High School Graduate	25.8%	26.4%	29.7%
1- 3 Years of College	29.0%	29.5%	30.4%
Bachelor's or Advanced Degree	11.8%	11.8%	12.3%
Kings County			
Less than High School	35.3%	32.3%	
High School Graduate	29.4%	29.8%	
1- 3 Years of College	27.7%	29.0%	
Bachelor's or Advanced Degree	7.6%	8.9%	
Madera County			
Less than High School	37.9%	36.5%	
High School Graduate	24.9%	25.7%	
1- 3 Years of College	26.8%	27.3%	
Bachelor's or Advanced Degree	10.4%	10.5%	
Merced County			
Less than High School	36.6%	36.1%	
High School Graduate	24.8%	25.0%	
1- 3 Years of College	28.1%	29.3%	

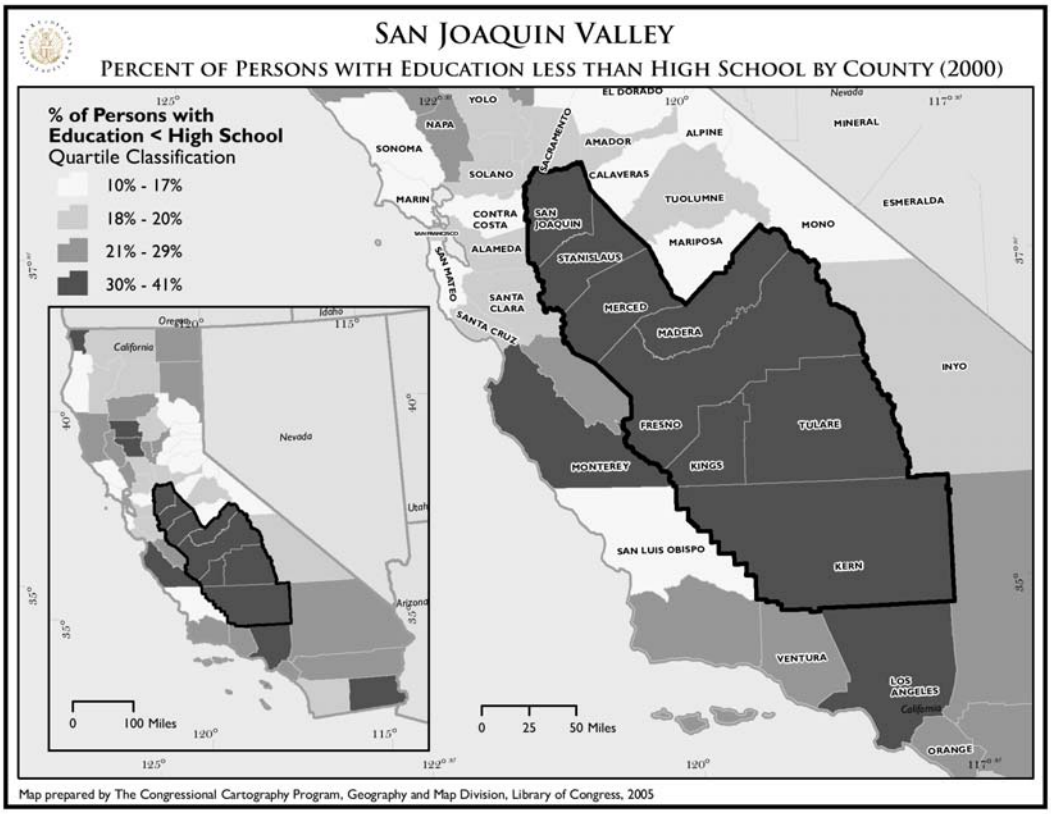
	1990	2000	2003
Bachelor's or Advanced Degree	10.5%	9.6%	
San Joaquin County			
Less than High School	31.8%	29.6%	28.7%
High School Graduate	26.3%	25.8%	30.6%
1- 3 Years of College	30.2%	31.7%	29.2%
Bachelor's or Advanced Degree	11.7%	12.9%	11.4%
Stanislaus County			
Less than High School	32.0%	29.9%	24.7%
High School Graduate	27.1%	27.1%	32.2%
1- 3 Years of College	29.4%	30.6%	29.1%
Bachelor's or Advanced Degree	11.5%	12.4%	14.0%
Tulare County			
Less than High School	40.4%	38.7%	33.7%
High School Graduate	23.7%	23.9%	27.2%
1- 3 Years of College	25.7%	27.4%	29.0%
Bachelor's or Advanced Degree	10.3%	10.0%	10.1%
Adjacent counties			
Mariposa County			
Less than High School	22.8%	16.4%	
High School Graduate	29.1%	27.3%	
1- 3 Years of College	32.3%	37.6%	
Bachelor's or Advanced Degree	15.8%	18.7%	
Tuolumne County			
Less than High School	21.3%	17.5%	
High School Graduate	33.6%	30.4%	
1- 3 Years of College	31.7%	37.4%	
Bachelor's or Advanced Degree	13.4%	14.7%	
California			
Less than High School	24.8%	24.0%	20.2%
High School Graduate	23.1%	21.1%	23.3%
1- 3 Years of College	31.3%	31.0%	30.2%

	1990	2000	2003
Bachelor's or Advanced Degree	20.8%	23.9%	26.3%
United States			
Less than High School	24.6%	20.3%	17.0%
High School Graduate	30.1%	28.6%	30.3%
1- 3 Years of College	26.7%	28.8%	28.4%
Bachelor's or Advanced Degree	18.5%	22.3%	24.4%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

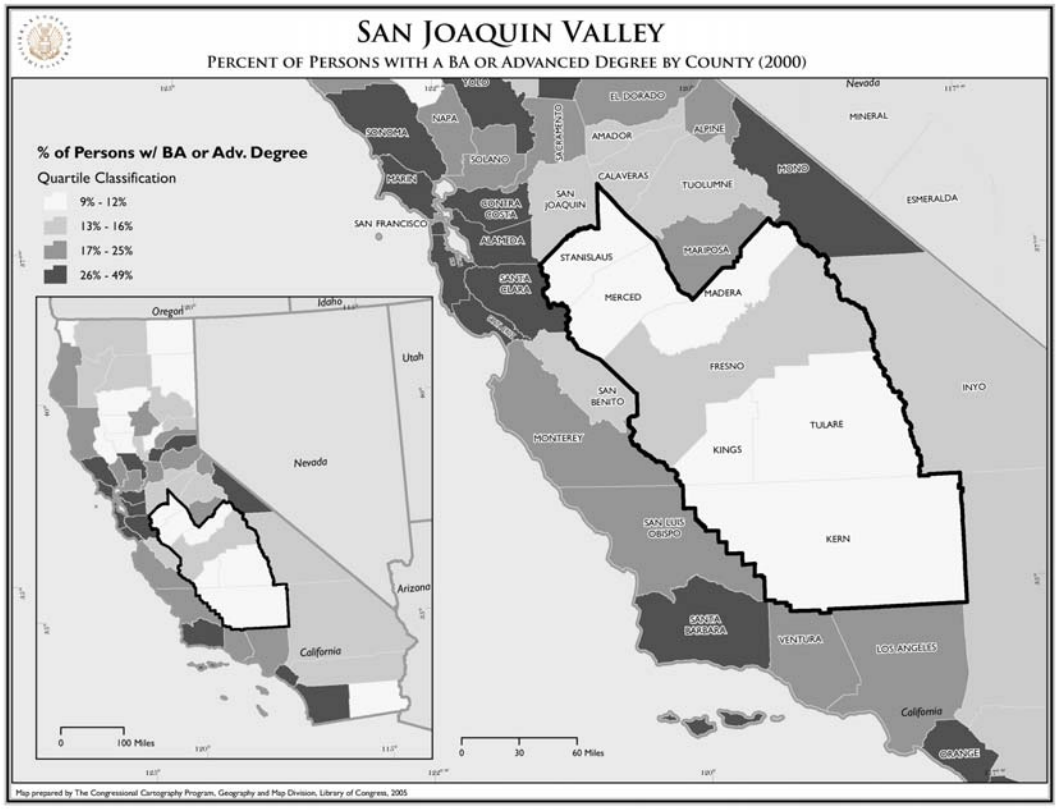
Note: Details may not sum to 100% because of rounding. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Figure 7. Percent of Persons with Education Less Than High School by County (2000)



Source: U.S. Bureau of the Census

Figure 8. Percent of Persons with a Bachelors Degree or Advanced Degree by County (2000)



Source: U.S. Bureau of the Census

Table 46. Educational Attainment: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1990-2003

(persons 18 and over)

	1990	2000	2003
Central ARC Counties			
Less than High School	44.6%	35.4%	NA
High School Graduate	31.6%	34.9%	NA
1- 3 Years of College	16.1%	20.4%	NA
Bachelor's or Advanced Degree	7.6%	9.4%	NA
Kentucky			
Less than High School	33.9%	25.8%	21.0%
High School Graduate	32.3%	33.4%	35.5%
1- 3 Years of College	21.4%	25.2%	26.4%
Bachelor's or Advanced Degree	12.4%	15.6%	17.1%
Tennessee			
Less than High School	1.9%	24.2%	19.1%
High School Graduate	30.6%	31.8%	34.8%
1- 3 Years of College	23.0%	26.2%	26.2%
Bachelor's or Advanced Degree	14.5%	17.9%	19.9%
Virginia			
Less than High School	24.2%	18.8%	15.8%
High School Graduate	27.7%	26.5%	28.0%
1- 3 Years of College	25.9%	27.7%	26.3%
Bachelor's or Advanced Degree	22.2%	27.0%	29.9%
West Virginia			
Less than High School	32.8%	24.4%	21.5%
High School Graduate	36.5%	38.8%	40.1%
1- 3 Years of College	19.3%	23.1%	22.9%
Bachelor's or Advanced Degree	11.4%	13.7%	15.6%
United States			
Less than High School	24.6%	20.3%	17.0%
High School Graduate	30.1%	28.6%	30.3%
1- 3 Years of College	26.7%	28.8%	28.4%
Bachelor's or Advanced Degree	18.5%	22.3%	24.4%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

Table 47. Per Pupil Amounts for Current Spending of Public Elementary and Secondary School Systems: United States, California, and Counties of the SJV, 1992-1993 and 2002-2003

	1992-1993	2002-2003
SJV	$4,889	$7,715
Fresno County	$5,193	$7,772
Kern County	$4,791	$7,757
Kings County	$4,755	$7,587
Madera County	$4,815	$7,645
Merced County	$5,068	$7,687
San Joaquin County	$4,669	$7,345
Stanislaus County	$4,603	$7,698
Tulare County	$5,030	$8,070
Adjacent Counties		
Mariposa County	$5,231	$8,554
Tuolumne County	$4,230	$8,326
California[a]	$4,845	$7,691
United States	$5,177	$8,019

Sources: U.S. Census Bureau, *2003 Census of Governments: Public Education Finances*; U.S. Census Bureau. *1993 Census of Governments: Public Education Finances*.

Note: Data presented by counties represent averages of all school districts in each county.

a. Payments made by the California state government into the state retirement system on behalf of school systems have been estimated for local school systems.

Table 48. Percent of Persons Who Speak a Language Other than English at Home: United States, California, and Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV	23.7%	30.3%	37.3%	
Fresno	27.7%	35.3%	40.8%	38.8%
Kern	20.0%	24.6%	33.4%	35.0%
Kings	27.1%	31.0%	36.7%	
Madera	25.7%	29.7%	37.0%	
Merced	26.5%	36.0%	45.2%	
San Joaquin	21.1%	27.9%	33.7%	35.6%
Stanislaus	18.0%	25.0%	32.4%	37.1%
Tulare	28.4%	35.9%	43.8%	46.5%
Adjacent counties				
Mariposa	4.9%	6.6%	5.2%	
Tuolumne	4.7%	8.5%	5.8%	
California	22.6%	31.5%	39.5%	40.8%
United States	11.0%	13.8%	17.9%	18.4%

Sources: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population and Housing: Summary Social, Economic and Housing Characteristics*, U.S. Govt. Print. Off, 1992; U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population: General Social and Economic Characteristics, U.S. Govt. Print. Off., 1983.

Note: Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

While per pupil spending and rates of graduation are related, a high expenditure is not necessarily a guarantee of a high graduation rate. Per pupil expenditures for elementary and secondary school systems in the SJV averaged $7,715 in 2002-2003. Each SJV county had expenditures over $7,000, with Tulare County spending over $8,000 per pupil **(Table 47**). Per pupil expenditures also rose significantly from 1992-1993 in all SJV counties.

School systems with high proportions of pupils for whom English is not their first language may experience higher per pupil costs than other school systems.

Table 48 shows that the SJV has a high proportion of persons who speak a language other than English at home. In 2000, over 37% in the SJV spoke a language other than English at home. In Merced County the rate was over 45% and in Tulare County, the rate was nearly 44%. In 2003, the rate in Tulare County was 46.5%, the highest of the SJV counties for which there were data. In California, the rate in 2003 was nearly 41%, compared to a national rate of 18.4%. These figures suggest significant challenges to the SJV school systems.

Per pupil spending in Central Appalachian was $777 lower than spending per pupil in the SJV (**Table 49**). Tennessee and Kentucky also spent less per pupil than the SJV average. West Virginia spends more per pupil than the other states and more per pupil than the SJV.

Given the high rate of population growth in the SJV from immigration, CRS sought an indicator of educational attainment of those in the labor force who reported moving in the previous years. **Table 50** shows that for those in the labor force residing in SJV MSAs who moved, the proportion of those with less than high school was lower than for the SJV as a whole. Of those who moved, the proportion of high school graduates was also higher than for the SJV as a whole. For 2002-2004, however, the proportion of high school graduates who moved in the previous year fell from 35.9% in 1999-2001, to 28.6% in 2002-2004. These rates were still higher than for the SJV as a whole.

Table 49. Per Pupil Amounts for Current Spending of Public Elementary and Secondary School Systems: United States, Kentucky, Tennessee, Virginia, West Virginia, and Central Counties of the ARC, 1992-1993 and 2002-2003

	1992-1993	2002-2003
Central ARC Counties [a,b]	$4,391	$6,938
Kentucky	$4,825	$6,647
Tennessee	$3,432	$6,201
Virginia	$5,055	$7,832
West Virginia	$5,073	$8,218
United States	$5,177	$8,019

Sources: U.S. Census Bureau, *2003 Census of Governments: Public Education Finances*; U.S. Census Bureau. *1993 Census of Governments: Public Education Finances*.

Note: Data presented for Central ARC counties represents the average of all school districts in the Central ARC counties.

a. Payments made by the Kentucky state government into the state teachers' retirement system and for health and life insurance on behalf of Kentucky school systems have been estimated for local school systems.

b. Payments made by the West Virginia state government into the state teachers' and public employees' retirement funds on behalf of West Virginia school systems have been estimated for local school systems.

Table 50. Educational Attainment of Persons in the Labor Force Who Moved During the Previous Year: United States, California, and MSAs of the SJV, 1989-2004

	1989-1991	1999-2001	2002-2004
SJV MSAs			
Less than high school	29.1%	23.4% [a]	25.1%
High school graduate	32.5%	35.9%	28.6%
1-3 Years of College	26.8%	28.9%	32.7%
Bachelor's or advanced degree	11.5%	11.8%	13.6%
California			
Less than high school	22.0%	16.6%	16.1%
High school graduate	25.9%	24.2%	22.8%
1-3 Years of College	27.6%	31.1%	32.2%
Bachelor's or advanced degree	24.5%	28.2%	29.0%
United States			
Less than high school	17.4%	14.7%	14.4%
High school graduate	33.6%	30.8%	29.4%
1-3 Years of College	25.9%	28.8%	28.8%
Bachelor's or advanced degree	23.1%	25.7%	27.4%

Source: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004.

Notes: In order to increase the sample sizes, all estimates are three-year averages. An MSA consists of an urban center (or centers) and adjacent communities that have a high degree of economic and social integration. Details may not sum to 100% because of rounding.

a Data for 1998 and later years may not be comparable to data for 1988-1990. Data for 1998 and later years include an MSA for Merced County. For 1998 and later, the Fresno MSA includes both Fresno and Madera counties.

Health and Disease Rates in the SJV. Disease prevalence, availability of health professionals, and other health indicators may reveal particular impediments to human capital development, and, by extension, to economic development. Disparities in health create significant burdens on health care providers and on society. The costs to provide health care to a population are directly related to the general health of the resident population. Poverty is a also a reliable indicator of health. As we discuss in a later section, the SJV plans to make health care and related industries a major growth sector for the future. High costs for health care, large proportions of the regional population without insurance, and high percentages

of Medicaid recipients may be important factors in the eventual success of an expanding healthcare center in the SJV. The variables examined in this section characterize some of the challenges the SJV might confront in the coming decade. Comparable data for the ARC are not available for many of the health variables presented below.

Physicians per 1,000 Population. The number of doctors per 1,000 population is one indicator of the availability of health care in a region. For the United States in 2001, there were 2.3 doctors engaged in patient care per 1,000 population. Total active doctors in the United States was 2.6 per 1,000 population. The latter figure includes physicians engaged in teaching, research, and administration as well as patient care physicians. In the SJV, there were 1.3 physicians engaged in patient care per 1,000 population and 1.4 active doctors per 1,000 population in 2001 (**Tables 51 and 52**). Fresno County had 1.7 doctors engaged in patient care per 1,000 population and 1.9 per 1,000 total. Kings County and Madera County had fewer than 1.0 physicians engaged in patient care per 1,000 and fewer than 1.0 total active doctors per 1,000 in 2001. California in 2001 had 2.2 doctors engaged in patient care per 1,000 population and 2.5 per 1,000 population total.

Central Appalachia looked very similar to the SJV in 2001 in distribution of physicians per 1,000 (**Tables 53 and 54**). The 68 Central Appalachian counties had 1.3 physicians engaged in patient care per 1,000 population, the same as the SJV, and 1.3 total active doctors per 1,000 population, one-tenth of a percent fewer than the SJV. Kentucky and West Virginia each had physician rates lower than the United States; Tennessee and Virginia had rates equal to or slightly greater than the United States.

Teen Birth Rates. Birth rates for teenagers aged 15-19 fell significantly between 1980 and 2003 in the SJV counties (**Table 55**). Rates in 2003 ranged from a low of 45.3 teen births per 1,000 population in Stanislaus County to a high of 69.2 per 1,000 in Madera. These rates were down considerably from their high point in 1990 when most of the SJV counties had rates of over 100 per 1,000 population, but were still significantly higher than the rates for California and the United States. Teen birth rates in the SJV grew from 1980 to 1990 and then fell in the decade 1990-2000. Mariposa and Tuolumne counties had rates below California, the United States, and the counties of the SJV.

Latinas have the highest teen birth rates of any race/ethnic group in California.[62] A 2003 report by the California Public Health Institute estimated that the annual net costs to U.S. taxpayers of births to teenagers in California amounted to approximately $1.5 billion based on 2000 data. The analysis disaggregated the data by counties in the various assembly districts in California. For assembly District 17 which included the counties of Merced, San Joaquin, and Stanislaus, the estimated annual cost to taxpayers associated with births to teenagers was $31 million; for

---

[62] Johnson, Hans B. 2003. Maternity Before Maturity: Teen Birth Rates in California. *California Counts: Population Trends and Profiles, Volume 4(3).* Public Policy Institute of California, San Francisco, February.

assembly District 29 which included the counties of Fresno and Madera, the estimated annual cost was $23 million; for assembly District 30, which included the counties of Fresno, Kern, Kings, and Tulare, the annual cost was $39 million; and for assembly District 31 which included the counties of Fresno and Tulare, the annual cost to taxpayers was $44 million.[63]

Infant Mortality Rates. Deaths of infants less than one year of age per 1,000 live births ranged from 12.9 in Kern County in 1980 to a low of 4.9 in Merced County in 2000. Infant mortality rates rose in five of the eight SJV counties in 2002 (**Table 56**). Rates were somewhat lower in the SJV compared to the United States and California in 1980. With the exception of Stanislaus County, rates in 2002 were lower than the United States, but much higher than the rates for California. A 2002 report presented infant mortality data for 38 of California's 58 counties, with the other counties not having enough live births and infant deaths to calculate reliable mortality rates.[64] The 38 California counties accounted for nearly 99% of California's live births and infant deaths in 2002. If the 38 counties are ranked from lowest (best) to highest (worst) for infant mortality rates, 16 counties rank better than the average for the state and 22 counties rank worse than the average. The eight counties of the SJV all rank worse than the state average, ranging from Tulare County at 20th to Stanislaus County at 35th. Two of the eight SJV counties, San Joaquin County and Stanislaus County, also had worse rates than the U.S. rate of 7.0 per 1,000 live births. The rates and the rankings may vary considerably from one year to another.

Age-Adjusted Obesity and Healthy Weight.[65] Interest in and data collection on obesity in specific communities is a relatively recent phenomenon. The California county data presented in **Table 57** are taken from the California Health Interview Survey (CHIS), which was first conducted in 2001. CHIS is a population-based telephone survey conducted every two years, with more than 55,000 households participating in 2001. For 2003, CHIS surveyed 42,000 households; these data are now being processed and are not yet available. CHIS 2005 is currently being planned.

The survey shows that SJV counties have higher incidences of obesity than California or the United States.

---

[63] Constantine, Norman A. and Carmen R. Nevarez. *No Time for Complacency: Teen Births in California*. California Public Health Institute. March, 2003, pp. 4-5, 28.

[64] Ficenec, Sandy. *California's Infant Mortality Rate, 2002*. California Department of Health Services, Center for Health Statistics, Data Summary No. DS04-02000, February 2004.

[65] The age-adjusted rate is the hypothetical rate if the population of the county or state were distributed by age in the same proportion as the 2000 U.S. population. It permits comparisons between counties without regard for the influence of the actual age distribution in the various counties.

Age-Adjusted Death Rates from Heart Disease. Heart disease has been the leading cause of death in the United States for well over 50 years.[66] In general, the age-adjusted death rate for heart disease has decreased significantly and steadily since 1980 for the United States as a whole and for California (**Table 58**). Experience in the counties of the SJV has been more mixed, with some counties showing a steady decline in the rate (Fresno, Kings, and Tulare), while others have seen their rates decline and either stabilize or increase again (Kern, Madera, Merced, San Joaquin, and Stanislaus). In 1980, 5 of the 8 counties of the SJV had age-adjusted death rates for heart disease that were higher than the average for the state, but none had rates higher than the U.S. average. In 2002, in contrast, all 8 counties had heart disease death rates higher than the California average, and 7 of the 8 had rates higher than the U.S. average (Kings County was the only exception). The heart disease death rate for Kern County has been consistently the highest among the 8 counties since 1980.

Age-Adjusted Death Rates from Cancers. In California and in the U.S., cancer has long been the second leading cause of death, after heart disease. The age-adjusted death rate for cancer peaked in California in 1984 (at 209.3 per 100,000 population) and in the U.S. as a whole in 1990 (at 216.0 per 100,000 population), and both rates have slowly decreased since then (**Table 59**). The rates for California have been consistently lower than those for the U.S., with the discrepancy increasing in recent years. The rates for the counties of the SJV have been more variable, but with two exceptions, Madera and Merced counties, they have not kept pace with the decline for California as a whole. In 1980, six of the eight SJV counties had age-adjusted death rates for cancer that were lower than the state and U.S. rates, while two of the eight, Kern and Merced counties, had rates higher than the U.S. average. In 2002, only Kings and Madera counties had rates lower than the state average, while three of the counties (Kern, San Joaquin, and Stanislaus) had rates higher than the U.S. rate, and the other three had intermediate rates, which were higher than the state average, but lower than the U.S. average.

Age-adjusted Death Rates from Stroke. Stroke is the third leading cause of death in the United States, after heart disease and cancer. In general, the death rate for cerebrovascular disease has decreased steadily since 1980 for the United States as a whole and for California (**Table 60**). Experience in the counties of the SJV has been more mixed, with some counties showing a fairly steady decline in the rate (Kings, San Joaquin, Stanislaus, and Tulare), while others have seen their rates decline and then increase again (Fresno, Kern, Madera, and Merced). In 2002, six of the eight SJV counties had age-adjusted death rates for cerebrovascular disease that were higher than the averages for both California and for the U.S.

Age-Adjusted Death Rates from All Causes. Age-adjusted death rates per 100,000 population from all causes fell in the SJV counties between 1980 and 2000 (**Table 61**). Between 1980 and 1990, only San Joaquin saw an increase in the age-adjusted death rate per 100,000 from all causes (757.9 vs 861.5). Between 2000 and 2002, however, five of the SJV counties had increases in their age-adjusted death

---

[66] Centers for Disease Control and Prevention. *Health, United States, 2004*, Table 29, p. 146.

rates (Fresno, Kern, Merced, San Joaquin, and Stanislaus). In 2002, all eight of the SJV counties had age-adjusted death rates higher than the average for the state, and five of the eight had rates higher than the U.S. average

Age-Adjusted Prevalence of Diabetes in Adults. Estimates of the age-adjusted prevalence of diagnosed diabetes among adults in the United States come from the annual National Health Interview Survey conducted by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC). Among the eight SJV counties, only Stanislaus in 2003 had a diabetes prevalence rate lower than the state rate (**Table 62**). All the other counties had rates higher than the state and U.S. rates in both 2001 and 2003. Consistent with the state and U.S. rates, rates for six of the eight counties also increased between 2001 and 2003.

Age-Adjusted Deaths from Diabetes. In 2002, all eight of the SJV counties had age-adjusted death rates for diabetes that were higher than the average for the state, and they also had rates higher than the U.S. average (**Table 63**). The diabetes death rate for Kings County was markedly higher than other counties in both 2000 and 2002.

Health and Disease Profile of Appalachia. Compiling comparable health data for the 68-county Central Appalachian area was beyond the scope of this report. A 2004 ARC report, *An Analysis of Disparities in Health Status and Access to Medical Care*, however, provides a detailed picture of the health disparities that are present in the ARC region. Results from that study show that the Appalachian region, much as the SJV area, suffers from an excess in mortality from leading causes of death when compared to the non-Appalachian United States. Data in the Appalachian study also reveal a high degree of variation within the region, with adverse health outcomes correlating geographically with the poorest and most isolated areas.[67] The low rate of physician access in Central Appalachia noted in **Table 53** and **Table 54** below is an important factor in health outcomes and one shared by the SJV. Major conclusions of the study show:

> While there is significant variation by geography, gender, ethnicity, and age, Appalachia has higher mortality rates from many of the major causes of disease relative to the non-Appalachian United States. The ARC region suffers an excess of premature deaths (among persons 35-64) from heart disease, all cancers combined, lung cancer, colorectal cancer, chronic obstructive pulmonary disease, diabetes, and motor vehicle accidents;
>
> High rates of hospitalization, a valid indicator of morbidity, are concentrated in the Central Appalachian counties of Eastern Kentucky, Southwest Virginia, and Western Virginia.

---

[67] Halverson, Joel. *An Analysis of Disparities in Health Status and Access to Health Care in the Appalachian Region*. Washington, D.C.: ARC, September, 2004.

Table 51. Total Active Doctors Per 1,000 Population: United States, California, and the Counties of the SJV, 1995-2001

	1995	2001
SJV	1.4	1.4
Fresno County	1.9	1.9
Kern County	1.3	1.4
Kings County	0.8	0.8
Madera County	0.7	0.9
Merced County	1.1	1.0
San Joaquin County	1.4	1.4
Stanislaus County	1.5	1.5
Tulare County	1.1	1.1
Adjacent counties		
Mariposa County	0.9	0.5
Tuolumne County	1.6	1.8
California	2.5	2.5
United States	2.4	2.6

Source: Calculated by CRS from the Area Resource File (ARF), available from the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, February 2003.

Notes: Data are for total active medical doctors, which includes physicians engaged in patient care as well as teaching, research, and administrative doctors.

Table 52. Doctors Engaged in Patient Care Per 1,000 Population: United States, California, and the Counties of the SJV, 1995-2001

	1995	2001
SJV	1.3	1.3
Fresno County	1.8	1.7
Kern County	1.3	1.3
Kings County	0.8	0.7
Madera County	0.6	0.9
Merced County	1.1	1.0
San Joaquin County	1.3	1.3
Stanislaus County	1.5	1.4
Tulare County	1.0	1.1
Adjacent counties		
Mariposa County	0.8	0.5
Tuolumne County	1.5	1.7
California	2.2	2.2
United States	2.2	2.3

Source: Calculated by CRS from the Area Resource File (ARF), available from the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, February 2003.

Notes: Data are for medical doctors engaged in patient care. Teaching, research, and administrative doctors are not included.

Table 53. Total Active Doctors Per 1,000 Population: United States, Kentucky, Tennessee, Virginia, West Virginia, and the Central Counties of the ARC, 1995-2001

	1995	2001
Central ARC Counties	1.2	1.3
Kentucky	2.0	2.2
Tennessee	2.3	2.5
Virginia	2.4	2.6
West Virginia	2.0	2.3
United States	2.4	2.6

Source: Calculated by CRS from the Area Resource File (ARF), available from the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, February 2003.

Notes: Data are for total active medical doctors, which includes physicians engaged in patient care as well as teaching, research, and administrative doctors.

Table 54. Doctors Engaged in Patient Care Per 1,000 Population: United States, Kentucky, Tennessee, Virginia, West Virginia, and the Central Counties of the Appalachian Regional Commission (ARC), 1995-2001

	1995	2001
Central ARC Counties	1.1	1.3
Kentucky	1.8	2.0
Tennessee	2.1	2.3
Virginia	2.2	2.4
West Virginia	1.8	2.1
United States	2.2	2.3

Source: Calculated by CRS from the Area Resource File (ARF), available from the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, February 2003.

Notes: Data are for medical doctors engaged in patient care. Teaching, research, and administrative doctors are not included.

Table 55. Teen Birth Rates: United States, California, and Counties of the SJV, 1980-2003

(per 1,000 population)

	1980	1990	2000	2003
	Teen birth rate (ages 15-19)	Teen birth rate (ages 15-19)	Teen birth rate (ages 15-19)	Teen birth rate (ages 15-19)
SJV				
Fresno	71.1	102.9	70.4	58.1
Kern	89.1	101.9	74.0	64.0
Kings	94.0	114.6	78.3	67.0
Madera	88.6	101.0	71.8	69.2
Merced	78.4	102.5	66.2	53.4
San Joaquin	68.4	88.4	61.1	48.7
Stanislaus	72.0	89.0	54.9	45.3
Tulare	90.6	105.9	78.5	67.5
Adjacent counties				
Mariposa	27.0	58.7	44.3	NA
Tuolumne	38.7	38.6	25.9	23.8
California	52.7	70.6	47.0	38.9
United States	53.0	59.9	47.7	41.7

Sources: Birth data for 1980 were obtained by telephone from the California Department of Health Services. The population data are from U.S. Department of Commerce, Bureau of the Census, *1980 Census of the Population, General Population Characteristics, California*, tables 19 and 45. The 1980 birth rates were calculated by the Congressional Research Service. Birth rate data for 1990 are from the California Department of Health Services, Maternal and Child Health, Epidemiology Section, prepared by D. Taylor, October 12, 2000, available at [http://www.mch.dhs.ca.gov/documents/pdf/teenbirthratebycounty1990-98.pdf]. Birth rate data for 2000 are from Hans P. Johnson, "Maternity Before Maturity: Teen Birth Rates in California," *California Counts — Population Trends and Profiles*, Public Policy Institute of California, vol. 4, no. 3, Feb. 2003, pp. 16-17. Data for 2003 are from the California Department of Health and Human Services, Center for Health Statistics, *Natality: County Data*, Number 18, available at [http://www.dhs.ca.gov/hisp/chs/OHIR/vssdata/2003data/2003NCountyPDF.htm]. See also: California Health Care Chartbook: Key Trends and Data (Henry J. Kaiser Family Foundation and the University of California, Berkeley, Center for Health and Public Policy Studies), August 2004, p. 9, exhibit 1.3c, available at [http://www.kff.org/statepolicy/7086/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=44213]. See also: Table 2.2, General Fertility Rates, Total Fertility Rates, and Birth Rates by Age of Mother, California, 1970, 1975, 1980, 1985, 1990-2003, available at [http://www.dhs.ca.gov/hisp/chs/OHIR/VSSdata/2001data/01Ch2Ex/2_02_2001.xls].

Table 56. Infant Mortality Rates: United States, California, and Counties of the SJV, 1980-2002

	1980	1990	2000	2002
	Deaths under one year of age per 1,000 live births			
SJV				
Fresno	11.1	8.5	7.2	6.9
Kern	12.9	10.3	7.4	6.2
Kings	10.2	12.3	6.0	6.5
Madera	10.8	3.3	5.7	6.1
Merced	8.4	7.6	4.9	6.9
San Joaquin	11.3	8.7	6.9	7.3
Stanislaus	7.6	8.1	7.0	7.8
Tulare	11.5	7.7	6.6	5.7
Adjacent counties				
Mariposa	NA	NA	NA	NA
Tuolumne	NA	NA	NA	NA
California	11.1	7.9	5.4	5.4
United States	12.6	9.2	6.9	7.0

NA - Infant mortality rates were not presented for counties with fewer than the 1,000 live births and fewer than five infant deaths needed to calculate reliable mortality rates.

Sources: Rates for the United States come from: Kochanek, KD, et al. *Deaths: Final Data for 2002*. National Vital Statistics Reports, vol. 53, no. 5, Oct. 12, 2004. Table 30, p. 94. Hyattsville, MD: National Center for Health Statistics. Available at [http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_05.pdf].

Rates for California and California counties come from a series of reports on California's infant mortality rate published by the California Department of Health Services, Center for Health Statistics. Reports for 1998 and later are available at [http://www.dhs.ca.gov/hisp/chs/OHIR/Publication/OtherReports/InfantDeath.htm]. The report for 1990 was obtained from the Department of Health Services.

Rates for 1980 and 1990 come from: Oreglia, Anthony. *California's Infant Death Rate, 1990*. California Department of Health Services, Health Data and Statistics Branch, Data Summary 92-01002, January 1992. Rates for 2000 and 2002 come from: Ficenec, Sandy. *California's Infant Mortality Rate, 2002*. California Department of Health Services, Center for Health Statistics, Data Summary No. DS04-02000, February 2004.

Table 57. Age-Adjusted Prevalence of Obesity and Healthy Weight: United States, California, and Counties of the SJV, 1992-2002

(per 100 adults)

Area	1992	2001		2002
	Obesity	Obesity	Healthy weight	Obesity
SJV				
Fresno	NA	26.6	33.1	NA
Kern	NA	25.6	37.3	NA
Kings	NA	27.5	35.0	NA
Madera	NA	24.4	34.6	NA
Merced	NA	29.9	30.6	NA
San Joaquin	NA	25.2	32.7	NA
Stanislaus	NA	25.2	36.2	NA
Tulare	NA	24.3	30.0	NA
Adjacent counties combined:				
Tuolumne/Calaveras/ Anador/Inyo/Mariposa/ Mono/Alpine	NA	16.6	43.2	NA
California	12 [a]	19.1	43.0	19 [a]
United States	13 [a]	23 [b]	NA	22 [a]
U.S. Health Objectives 2010		(15)	(60)	

Sources unless otherwise noted: California. Department of Health. Center for Health Statistics. Prevalence of obesity and healthy weight in California counties, 2001. Prepared by Laura Lund, Sharon Sugerman and Susan Forster. June 2004. (Adults defined as age 20 and above).

Notes: The data provided in this table are from three different sources because the interest in and data collection on obesity is only relatively recent in terms of specific communities. While national data have been collected for years, state-by-state data have only been collected over the past 20 years. Within state data are even more recent as a result of the recognition that obesity prevention is largely a health problem needing local solutions.

The California counties data presented in this table is taken from the California Health Interview Survey (CHIS), which was first conducted in 2001. CHIS is a population-based telephone survey conducted every two years with more than 55,000 households participating in 2001. CHIS 2003 surveyed 42,000 households; the data are now being processed and are not yet available. CHIS 2005 is currently being planned.

Obesity occurs when individuals consistently consume more calories than they expend in physical activity. According to the CHIS survey report, obesity is roughly equivalent to an average of 30

pounds overweight. While the table provides data on the self-reported prevalence of obesity and healthy weight in the selected counties, no information is available on the prevalence of overweight and underweight in the individuals surveyed.

U.S. Health Objectives are public health goals that have been set every decade since the 1970s. They are designed as goals for health professionals to work toward in terms of improving the overall health status of the U.S. population. According to *Health People 2010*, adults with a body mass index greater than or equal to 18.5 and less than 25 have a healthy weight, while adults with a body mass index greater than or equal to 30 are obese.

a. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. Trends Data, 1992-2002.(Adults defined as age 18 and above).
b. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey. Prevalence of Overweight and Obesity Among Adults: United States, 1999-2002. (Adults defined as age 20 and above).

Table 58. Age-Adjusted Death Rates from Heart Disease: United States, California, and Counties of the SJV, 1980-2002

	1980	1990	2000	2002
	Age-adjusted deaths per 100,000 population			
SJV				
Fresno	349.6	309.4	252.4	248.7
Kern	410.2	381.3	313.1	317.7
Kings	380.0	375.1	292.8	238.4
Madera	335.5	295.1	251.3	252.7
Merced	400.7	275.8	222.2	253.2
San Joaquin	378.7	311.2	252.8	256.8
Stanislaus	349.8	253.4	301.3	303.1
Tulare	376.3	350.0	258.0	253.0
Adjacent counties				
Mariposa	312.1	273.9	161.9	232.6
Tuolumne	375.2	299.7	286.1	223.6
California	374.6	303.2	239.9	225.9
United States	412.1	321.8	257.6	240.8

Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Compressed Mortality File, a database containing mortality and population counts for all U.S. counties, searchable by cause of death, state, county, age, race, sex, and year. It is available for queries covering 1979-2002 via the CDC WONDER On-line Database at [http://wonder.cdc.gov].

Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1979-98 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10). In this table, heart disease is defined as ICD-9 Codes 390-398, 402, 404, and 410-429 (Compressed Mortality File Groups GR028-GR036), and ICD-10 Codes I00-I09, I11, I13, and I20-I51 (Compressed Mortality File Groups GR049-GR059).

Note: The age-adjusted death rate is the hypothetical rate if the population of the county or state were distributed by age in the same proportion as the 2000 United States population. It allows comparisons between counties without regard to the influence of the actual age distribution in the various counties. The crude death rate (not shown) represents the actual risk of dying in that county or state for the given year (number of deaths divided by the population of the county or state).

Table 59. Cancer Deaths: Age-Adjusted Death Rates from Cancers: United States, California, and Counties of the SJV, 1980-2002

	1980	1990	2000	2002
	Age-adjusted deaths per 100,000 population			
SJV				
Fresno	190.6	200.9	177.6	176.1
Kern	210.1	217.7	181.9	196.0
Kings	183.3	159.6	162.0	174.5
Madera	192.8	193.0	178.6	151.0
Merced	239.3	227.1	185.4	176.9
San Joaquin	204.8	200.0	193.9	204.1
Stanislaus	200.2	191.0	198.4	197.1
Tulare	193.4	207.1	182.0	180.6
Adjacent counties				
Mariposa	173.4*	145.5	290.0	185.1
Tuolumne	222.5	215.8	185.6	218.5
California	204.8	203.5	182.1	175.1
United States	207.9	216.0	199.6	193.5

Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Compressed Mortality File, a database containing mortality and population counts for all U.S. counties, searchable by cause of death, state, county, age, race, sex, and year. It is available for queries covering 1979-2002 via the CDC WONDER On-line Database at [http://wonder.cdc.gov].

Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1979-98 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10). In this table, malignant neoplasms (cancer) includes ICD-9 Codes 140-208.9 and ICD-10 Codes C00-C97.

Note: The age-adjusted death rate is the hypothetical rate if the population of the county or state were distributed by age in the same proportion as the 2000 United States population. It allows comparisons between counties without regard to the influence of the actual age distribution in the various counties. The crude death rate (not shown) represents the actual risk of dying in that county or state for the given year (number of deaths divided by the population of the county or state).

* Statistically unreliable rate, because it is based on a death count of 20 or fewer deaths in the county.

Table 60. Age-Adjusted Death Rates from Stroke: United States, California, and Counties of the SJV, 1980-2002

	1980	1990	2000	2002
	Age-adjusted deaths per 100,000 population			
SJV				
Fresno	101.7	56.5	66.8	65.3
Kern	81.6	60.1	75.0	65.6
Kings	119.3	85.1	65.2	43.5
Madera	141.2	47.7	47.7	55.2
Merced	92.1	53.7	58.5	65.1
San Joaquin	92.8	81.0	75.8	74.4
Stanislaus	109.4	73.9	66.7	59.5
Tulare	114.2	72.9	72.7	68.3
Adjacent counties				
Mariposa	58.3*	64.9*	46.1*	40.2*
Tuolumne	82.5	61.6	47.7	53.6
California	99.4	71.0	64.0	58.1
United States	96.4	65.5	60.8	56.2

Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Compressed Mortality File, a database containing mortality and population counts for all U.S. counties, searchable by cause of death, state, county, age, race, sex, and year. It is available for queries covering 1979-2002 via the CDC WONDER On-line Database at [http://wonder.cdc.gov].

Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1979-98 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10). In this table, cerebrovascular disease includes ICD-9 Codes 430-438 and ICD-10 Codes I60-I69.8.

Notes: The age-adjusted death rate is the hypothetical rate if the population of the county or state were distributed by age in the same proportion as the 2000 United States population. It allows comparisons between counties without regard to the influence of the actual age distribution in the various counties. The crude death rate (not shown) represents the actual risk of dying in that county or state for the given year (number of deaths divided by the population of the county or state).

Stroke is the third leading cause of death in the United States, after heart disease and cancer. In general, the death rate for cerebrovascular disease has decreased significantly and steadily since 1980 for the United States as a whole and for California. Experience in the counties of the SJV has been more mixed, with some counties showing a fairly steady decline in the rate (Kings, San Joaquin, Stanislaus, and Tulare), while others have seen their rates decline and then increase again (Fresno, Kern, Madera, and Merced). In 2002, 6 of the 8 SJV counties had age-adjusted death rates for cerebrovascular disease that were higher than the averages for both California and for the United States.

*Statistically unreliable rate, because it is based on a death count of 20 or fewer deaths in the county.

Table 61. Age-Adjusted Death Rates from All Causes of Death: United States, California, and Counties of the SJV, 1980-2002

	1980	1990	2000	2002
	Age-adjusted deaths per 100,000 population			
SJV				
Fresno	1,002.7	919.0	829.6	843.6
Kern	1,103.5	1,019.0	931.8	962.4
Kings	1,044.3	987.3	870.6	832.9
Madera	1,003.8	890.4	843.7	788.1
Merced	1,090.6	898.4	829.0	864.5
San Joaquin	1,050.4	757.9	861.5	877.8
Stanislaus	991.2	909.2	895.5	917.8
Tulare	1,053.1	997.9	898.7	886.6
Adjacent counties				
Mariposa	901.2	817.0	719.2	779.9
Tuolumne	1,088.1	916.3	833.9	817.3
California	995.6	904.3	787.2	758.1
United States	1,038.7	938.0	868.3	845.3

Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Compressed Mortality File, a database containing mortality and population counts for all U.S. counties, searchable by cause of death, state, county, age, race, sex, and year. It is available for queries covering 1979-2002 via the CDC WONDER On-line Database at [http://wonder.cdc.gov].

Note: The age-adjusted death rate is the hypothetical rate if the population of the county or state were distributed by age in the same proportion as the 2000 United States population. It allows comparisons between counties without regard to the influence of the actual age distribution in the various counties. The crude death rate (not shown) represents the actual risk of dying in that county or state for the given year (number of deaths divided by the population of the county or state).

Table 62. Age-Adjusted Prevalence of Diagnosed Diabetes in Adults: United States, California, and Counties of the SJV, 2000-2003

	2000	2001	2002	2003
	Age-adjusted rate per 100 adults (age 18 and over)			
SJV				
Fresno	NA	7.8	NA	8.1
Kern	NA	7.1	NA	7.4
Kings	NA	8.8	NA	9.1
Madera	NA	6.6	NA	9.2
Merced	NA	7.9	NA	10.5
San Joaquin	NA	7.7	NA	7.8
Stanislaus	NA	6.3	NA	5.7
Tulare	NA	10.5	NA	9.4
Adjacent counties				
Tuolumne/Calaveras/ Amador/Inyo/Mariposa/ Mono/Alpine	NA	5.1	NA	5.6
California	NA	6.1	NA	6.6
United States	6.0	6.4	6.5	6.5

Sources: Estimates of the age-adjusted prevalence of diagnosed diabetes among adults in California and California counties have been available since 2001 through the California Health Interview Survey (CHIS). CHIS 2001 and CHIS 2003 are population-based household telephone surveys of a sampling of California adults, providing county-specific data on various health measures, including diabetes. The survey is planned again for 2005. See Laura E. Lund and Gary He, *Prevalence of Diabetes in California Counties, 2001*, California Department of Health Services, Center for Health Statistics, County Health Facts No. 04-01, January 2004. Also Laura E. Lund, *Prevalence of Diabetes in California Counties: 2003 Update*, County Health Facts Update No. 05-A, February 2005. Both are available at [http://www.dhs.ca.gov/hisp/chs/OHIR/reports/].

Before CHIS, diabetes prevalence for California counties was estimated by extrapolation from state rates determined by the California Behavioral Risk Factor Survey. The rates are not comparable to those derived from CHIS. See, for example, the January 2000 report, *The Burden of Diabetes in California Counties*, published by the Diabetes Control Program of the California Department of Health Services. The report is available at [http://www.caldiabetes.org] (click on Data).

Estimates of the age-adjusted prevalence of diagnosed diabetes among adults in the United States come from the annual National Health Interview Survey conducted by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC). They are published annually in *Summary Health Statistics for U.S. Adults: National Health Interview Survey, [year]* (see Table 8), which is a publication in the *Vital and Health Statistics* Series 10. The most recent compilation of prevalence rates for diagnosed diabetes, covering 1997-2004, may be found at [http://www.cdc.gov/nchs/about/major/nhis/released200503.htm] in the *Early Release of Selected Estimates Based on Data From the January-September 2004 National Health Interview Survey*.

Note: Among the 8 SJV counties, only Stanislaus in 2003 had a diabetes prevalence rate lower than the state rate. All the other counties had rates higher than the state and U.S. rates in both 2001 and 2003. In company with the state and U.S. rates, rates for 6 of the 8 counties increased between 2001 and 2003.

Table 63. Diabetes Deaths — Age-Adjusted Death Rates for Diabetes Mellitus: United States, California, and Counties of the SJV, 1980-2002

	1980	1990	2000	2002
	Age-adjusted deaths per 100,000 population			
SJV				
Fresno	15.6	18.3	28.3	27.9
Kern	20.2	15.1	28.4	31.9
Kings	13.3*	29.5*	44.6	65.6
Madera	20.0*	29.0	32.6	30.7
Merced	26.2	23.3	32.9	35.4
San Joaquin	18.2	20.7	25.4	31.9
Stanislaus	17.3	10.3	24.2	29.2
Tulare	14.4	21.1	31.4	32.0
Adjacent counties				
Mariposa	15.5*	Suppressed	Suppressed	Suppressed
Tuolumne	2.1*	17.4*	9.5*	16.7*
California	13.8	14.2	21.3	22.2
United States	18.1	20.7	25.0	25.4

Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Compressed Mortality File, a database containing mortality and population counts for all U.S. counties, searchable by cause of death, state, county, age, race, sex, and year. It is available for queries covering 1979-2002 via the CDC WONDER On-line Database at [http://wonder.cdc.gov].

Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1979-98 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10). In this table, diabetes is defined as ICD-9 Codes 250-250.9 and ICD-10 Codes E10-E14.9.

Notes: The age-adjusted death rate is the hypothetical rate if the population of the county or state were distributed by age in the same proportion as the 2000 United States population. It allows comparisons between counties without regard to the influence of the actual age distribution in the various counties. The crude death rate (not shown) represents the actual risk of dying in that county or state for the given year (number of deaths divided by the population of the county or state).

For 1989 and later, some death rates are marked "Suppressed" due to confidentiality constraints and concern for protecting personal privacy in the case of small counties (year 2000 population less than 100,000) with few deaths (5 or fewer deaths from the condition.)

*Statistically unreliable rate, because it is based on a death count of 20 or fewer deaths in the county.

Medicare Enrollment in the SJV and Appalachia. In 2001-2003, 9.8% of the SJV population was covered by Medicare (**Table 64**). The proportion of the region's population covered by Medicare has been relatively stable and was less than the rate in California (10.9%) and the United States (13.5%). Data are not available for Central Appalachia, but the four states containing the 68 counties had higher proportions of their population covered by Medicare (**Table 65**). In 2001-2003, Kentucky had 15.8% of its population covered by Medicare, 13.5% in Tennessee, 13.1% in Virginia, and 20.2% in West Virginia. These rates reflect the fact that Appalachia's population has a much higher proportion of elderly. Rural areas in the United States generally have higher proportions of those 65 and older than the United States as whole.

In 1988-1990, the Metropolitan Statistical Areas of Modesto and Stockton-Lodi had greater rates of Medicare coverage than California. Modesto's proportion was also greater than that of the United States. In 1998-2000, Stockton-Lodi also has had the highest proportion of its population covered by Medicare, although the rate (10.1%) was lower than that of California (10.9%). All other SJV metropolitan areas had lower Medicare rates than California. In the 2001-2003 period, Modesto's rate of Medicare coverage grew to 13.4%, up from 9.1% in 1998-2000. Only Modesto had higher proportions of its population under Medicare than California.

Table 66 and **Table 67** provide data on per capita monthly Medicare expenditures for aged beneficiaries in traditional medicine for the SJV and Central Appalachian counties respectively.

Per capita monthly expenditures for aged beneficiaries on traditional medicine in the SJV was $527 in 2003 (**Table 66**). This was less than monthly expenditures in California ($620) and nearly the same as for the United States ($534). The adjacent counties of Mariposa and Tuolumne had lower monthly expenditures than the SJV. Monthly expenditures grew by 44% between 1990 and 2003 and 16.5% between 2000 and 2003. Monthly expenditures were highest in Stanislaus County ($680) and lowest in Fresno County ($459).

In 2003, per capita monthly expenditures for aged beneficiaries on traditional medicine in the Central Appalachia was $541, slightly higher than the per capita expenditure rate in the SJV, and generally higher than the monthly rate for most of the individual SJV counties (**Table 67**). The monthly per capita rate in Cental Appalachia was higher than the rate in each of the four states and the United States. Monthly per capita rates increased by 52.5% between 1990 and 2003 and by 17.6% between 2000 and 2003.

Table 64. Percent of the Population Covered by Medicare: United States, California, and MSAs of the SJV, 1988-2003

	1988-1990	1998-2000	2001-2003
SJV	9.8%	9.1% [a]	9.8%
Bakersfield (Kern County)	10.7%	8.9%	7.2%
Fresno (Fresno County 1989-1991; Fresno and Madera Counties later years)	6.6%	9.3%	10.7%
Merced (Merced County)		8.2%	7.9%
Modesto (Stanislaus County)	14.0%	9.1%	13.4%
Stockton-Lodi (San Joaquin County)	11.4%	10.1%	9.6%
Visalia-Tulare-Porterville (Tulare County)	8.3%	8.2%	9.9%
California	10.9%	10.9%	10.9%
United States	12.8%	13.3%	13.5%

Sources: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects health insurance information for the previous year.

Notes: In order to increase the sample sizes for each MSA, all estimates are three-year averages. An MSA consists of an urban center (or centers) and adjacent communities that have a high degree of economic and social integration.

a. Data for 1998 and later years may not be comparable to data for 1988-1990. Data for 1998 and later years include an MSA for Merced County. For 1998 and later, the Fresno MSA includes both Fresno and Madera counties.

Table 65. Percent of the Population Covered by Medicare: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1988-2003

	1988-1990	1998-2000	2001-2003
Central ARC Counties	NA	NA	NA
Kentucky	14.1%	14.0%	15.8%
Tennessee	14.4%	12.6%	13.5%
Virginia	11.2%	13.2%	13.1%
West Virginia	15.8%	19.5%	20.2%
United States	12.8%	13.3%	13.5%

Sources: Calculated by CRS from the March Current Population Surveys (CPS) for 1989-1991, 1999-2001, and 2002-2004. The March CPS collects health insurance information for the previous year.

Note: In order to increase the sample sizes for each state, all estimates are three-year averages.

Table 66. Per Capita Monthly Medicare Expenditures for Aged Beneficiaries in Traditional Medicare: United States, California, and Counties of the SJV, 1990-2003

	1990	2000	2003
SJV	$295	$440	$527
Fresno	$260	$391	$459
Kern	$337	$490	$563
Kings	$246	$413	$449
Madera	$266	$409	$474
Merced	$308	$419	$512
San Joaquin	$313	$451	$526
Stanislaus	$293	$501	$680
Tulare	$288	$390	$464
Adjacent counties			
Mariposa	$265	$372	$431
Tuolumne	$283	$368	$486
California	$366	$526	$620
United States	$298	$441	$534

Source: Table created by CRS based on data from the Centers for Medicare and Medicaid Services.

Note: Amounts are based on three-year averages ending in the years shown and are weighted by beneficiary demographics and count.

Table 67. Per Capita Monthly Medicare Expenditures for Aged Beneficiaries in Traditional Medicare: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1990-2003

	1990	2000	2003
Central ARC Counties	$257	$446	$541
Kentucky	$244	$399	$493
Tennessee	$258	$407	$488
Virginia	$258	$342	$419
West Virginia	$275	$387	$471
United States	$298	$441	$534

Source: Table created by CRS based on data from the Centers for Medicare and Medicaid Services.

Note: Amounts are based on three-year averages ending in the years shown and are weighted by beneficiary demographics and count.

Crimes and Crime Rates in the SJV and Appalachia. Although the crime rate per 100,000 population in the SJV declined from 7,692 in 1980 to 6,812 in 1990, the total number of crimes increased between 1980 and 1990 from 157,530 to 186,889 **(Table 68**).[68] Violent crimes, which include murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault, increased from 14,852 incidents in 1980 to 22,391 in 1990. Property crime also increased between 1980 and 1990. The crime rate per 100,000 population in the SJV was slightly less than the rate for California in 1980 and somewhat higher than California's rate in 1990. Madera, Merced, Stanislaus, and Tulare counties had rates lower in 1980 than both California and the SJV rate. Fresno, Kern, Kings, and San Joaquin counties had rates per 100,000 higher than California and the SJV rate in 1980. Data were not available for Mariposa County, but Tuolumne County had a crime rate of 3,979 per 100,000 population in 1980, almost half the rate of California and the SJV, and for 1990 its rate of 2,596 was less than half the rate of California or the SJV.

SJV and California's crime rates declined between 1980 and 1990. Kings County saw its rate decline from 5,221 per 100,000 population to 3,805 per 100,000, although the total number of crimes remained about the same. Kings, Madera, and Merced counties had roughly the same number of total crimes in 1990 as they did in 1980. Kern County's total number of crimes decreased from 36,144 in 1980 to 34,931 in 1990. San Joaquin County, on the other hand, had a total of 40,006 crimes in 1990, up from 29,929 in 1980. Tuolumne County had a total of 1,258 crimes in 1990 for a rate per 100,000 of 2,596.

Between 1990 and 2000, the total number of crimes in the SJV decreased from 186,889 to 160,093 and the rate per 100,000 population fell from 6,812 to 4,847. California's rate fell as well, to 3,740. With the exception of Kings and Madera counties, in 2000 the SJV counties each had crime rates per 100,000 population higher than California. Tuolumne County's rate fell to 1,644 per 100,000 in 2000. In 2003, however, the total number of crimes in the SJV increased by over 14,000 crimes and the rate per 100,000 population increased slightly to 4,872. Most of the increase was attributable to increases in property crimes.

Crime rates and total number of crimes were not calculated for the 68 counties of Central Appalachia. The rates per 100,000 for the four Appalachian states, however, were each significantly lower than the rates for the SJV **(Table 69**). In some years, the total number of crimes committed in Kentucky and West Virginia was less than for the eight counties of the SJV. With the exception of Tennessee in 2000 and 2003, the crime rate of the SJV exceeded the rate per 100,000 population in each Appalachian state (**Table 69)**. Total property crimes in the SJV were almost as high as the combined property crime total for Kentucky and West Virginia in 2003.

---

[68] Crime data were reported for MSA's that were contiguous with single counties or the sum of offences reported by city, county and state law enforcement agencies for the county.

Table 68. Number of Crimes and Crime Rate: United States, California, and Counties of the SJV, 1980-2003

	Total number of crimes	Number of violent crimes [a]	Number of property crimes [b]	Total Crimes: Rate Per 100,000 Population
	1980			
SJV	157,530	14,852	142,678	7,692
Fresno County	43,424	4,688	38,736	8,438
Kern County	36,144	3,286	32,858	8,967
Kings County	3,850	492	3,358	5,221
Madera County	2,920	372	2,548	4,626
Merced County	8,032	587	7,445	5,969
San Joaquin County	29,929	2,567	27,362	8,617
Stanislaus County	20,236	1,514	18,722	7,610
Tulare County	12,995	1,346	11,649	5,288
Adjacent counties				
Mariposa County	NA			
Tuolumne County	1,350	175	1,175	3,979
California	1,843,332	210,290	1,633,042	7,788
United States	13,408,300	1,344,520	12,063,700	5,919
	1990			
SJV	186,889	22,391	164,498	6,812
Fresno County	55,036	6,799	48,237	8,245
Kern County	34,931	4,646	30,285	6,410
Kings County	3,861	457	3,404	3,805
Madera County	3,831	458	3,373	4,349
Merced County [c]	8,266	866	7,400	4,633
San Joaquin County	40,006	3,937	36,069	8,324
Stanislaus County	24,202	2,962	21,240	6,532
Tulare County [c]	16,756	2,266	14,490	5,372

	Total number of crimes	Number of violent crimes [a]	Number of property crimes [b]	Total Crimes: Rate Per 100,000 Population
Adjacent counties				
Mariposa County	NA			
Tuolumne County	1,258	70	1,188	2,596
California	1,965,237	311,051	1,654,186	6,604
United States	14,475,613	1,820,127	12,655,486	5,820
	2000			
SJV	160,093	21,804	138,289	4,847
Fresno County [c]	48,252	6,042	42,210	6,036
Kern County	25,560	3,240	22,320	3,863
Kings County	3,131	353	2,778	2,418
Madera County	4,595	803	3,792	3,732
Merced County	8,993	1,307	7,686	4,271
San Joaquin County	29,633	4,594	25,039	5,258
Stanislaus County	23,840	3,088	20,752	5,333
Tulare County	16,089	2,377	13,712	4,372
Adjacent counties				
Mariposa County	NA			
Tuolumne County	896	96	800	1,644
California	1,266,714	210,531	1,056,183	3,740
United States	11,608,070	1,425,486	10,182,584	4,125
	2003			
SJV	174,538	22,755	151,783	4,872
Fresno County [c]	47,520	5,055	42,465	5,588
Kern County	33,125	3,742	29,383	4,645
Kings County [c]	3,917	434	3,483	2,827

	Total number of crimes	Number of violent crimes [a]	Number of property crimes [b]	Total Crimes: Rate Per 100,000 Population
Madera County [c]	5,022	864	4,158	3,763
Merced County	11,533	1,603	9,930	4,980
San Joaquin County	40,781	5,381	35,400	6,445
Stanislaus County	30,074	3,110	26,964	6,110
Tulare County	2,566	2,566	NA	NA
Adjacent counties				
Mariposa County	NA			
Tuolumne County	1,640	204	1,436	2,890
California	1,420,637	205,551	1,215,086	4,004
United States	11,816,782	1,381,259	10,435,523	4,063

Sources: U.S. Department of Justice, Federal Bureau of Investigation, *Crime Statistics in the United States*, various issues. The population estimates used to calculate crime rates are from **Table 2** above.

Notes: Data are for (a) metropolitan statistical areas (MSAs) that are contiguous with single counties or (b) the sum of offenses reported by city, county, and state law enforcement agencies for the county. Data for cities are for cities and towns with populations of 10,000 or more.

a. Violent crimes include murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault.
b. Property crimes include burglary, larceny theft, and motor vehicle theft.
c. Because of changes in reporting procedures (e.g., a new or separate MSA), data may not be comparable to data for previous years.

Table 69. Number of Crimes and Crime Rate: United States, Kentucky, Virginia, Tennessee, West Virginia, and Central Counties of the ARC, 1980-2003

	Total number of crimes	Number of violent crimes [a]	Number of property crimes [b]	Total Crimes: Rate Per 100,000 Population
	1980			
Central ARC Counties	NA			
Kentucky	125,039	9,711	115,328	3,416
Tennessee	204,456	20,824	183,632	4,453
Virginia	245,942	16,355	229,587	4,600
West Virginia	49,266	3,547	45,719	2,526
United States	13,408,300	1,344,520	12,063,700	5,919
	1990			
Central ARC Counties	NA			
Kentucky	121,594	14,386	107,208	3,298
Tennessee	246,346	32,698	213,648	5,051
Virginia	274,757	21,694	253,063	4,439
West Virginia	44,891	3,036	41,855	2,503
United States	14,475,613	1,820,127	12,655,486	5,820
	2000			
Central ARC Counties	NA			
Kentucky	119,626	11,903	107,723	2,960

	Total number of crimes	Number of violent crimes [a]	Number of property crimes [b]	Total Crimes: Rate Per 100,000 Population
Tennessee	278,218	40,233	237,985	4,890
Virginia	214,348	19,943	194,405	3,028
West Virginia	47,067	5,723	41,344	2,603
United States	11,608,070	1,425,486	10,182,584	4,125
	2003			
Central ARC Counties	NA			
Kentucky	121,195	10,777	110,418	2,943
Tennessee	296,010	40,177	255,833	5,067
Virginia	220,106	20,375	199,731	2,980
West Virginia	47,375	4,661	42,714	2,617
United States	11,816,782	1,381,259	10,435,523	4,063

Sources: U.S. Department of Justice, Federal Bureau of Investigation, *Crime Statistics in the United States*, various issues. The population estimates used to calculate crime rates are from **Table 2** above.

a. Violent crimes include murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault.
b. Property crimes include burglary, larceny theft, and motor vehicle theft.

Chapter 3 — Federal Direct Expenditures in the San Joaquin Valley and the Appalachian Regional Commission Area

Scope. This chapter describes the functional categories and funding levels of federal direct expenditures and obligations going to the San Joaquin Valley and compares it to the 410-county ARC area and to Central Appalachia, a 68-county subregion of the Appalachian Regional Commission area comprised of particular counties in Kentucky, Tennessee, Virginia, and West Virginia. Comparative federal funds data for FY2003 are also provided for another distinctive economic development area, the Tennessee Valley Authority, a 186 county area in Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia (See **Appendix E** for a list of the counties). Data on total direct federal expenditures in the SJV and Appalachia are provided for the two most recent fiscal years available, FY2002 and FY2003. Related, but not directly comparable, data on six functional categories developed by the USDA's Economic Research Service are provided for the 68-county Central Appalachia area and for the SJV. A rough gauge of the importance of federal programs locally can be obtained by computing total federal funds received in a particular county divided by the county's population (federal funds per capita). Per capita data on federal expenditures are also provided in the tables below. Two non-metro counties adjacent to the SJV, Mariposa and Tuolumne, are also profiled and compared to the eight county SJV.

Federal expenditures are the obligations made by various federal agencies to state, county, and subcounty areas of the United States, including the District of Columbia and U.S. outlying areas.
Total federal *assistance* is larger than total federal *payments*. For FY2002, reported amounts for nationwide direct expenditures or obligations (i.e., payments) totaled $2.1 trillion. However, there was an additional $966 billion in other federal assistance in FY2002 for direct and guaranteed loans and insurance programs. These latter programs, while part of federal benefits, are considered "contingent liabilities" of the federal government. Loans are expected to be repaid and insurance payments occur only when an insured event occurs, (e.g., crop damage or flooding). If a loan is in default or a payment made for insured damages, only then is there a federal obligation, i.e., a payment. When that happens, the payment is included in the category of direct expenditures and obligations.

No single data source consistently reports accurate and complete figures on the geographic distribution of federal funds. The federal government currently has five major sources that present geographical distribution of federal domestic grants, loans, salaries and wages, direct payment to individuals, and federal procurement activity. These five sources are (1) F*ederal Aid to States,* (2) the *Consolidated Federal Funds Report*, both published annually by the U.S. Bureau of the Census; (3) the Office of Management and Budget Circular A-133 audits; (4) the *Federal Procurement Report*; and (5) the *Analytical Perspectives* volume of the U.S. budget documents.[69] For comparative purposes, CRS chose the *Consolidated Federal Funds Report*

[69] See CRS Report 98-79, *Federal Funds: Tracking Their Geographic Distribution*.

because it has the broadest county level coverage. *Federal Aid to the States* provides a relatively comprehensive picture of individual federal agencies and functional areas within those agencies, and the aggregate figures are included in the broad categories of the *Consolidated Federal Funds Report*. Readers are encouraged to examine the data sources for additional perspective on federal funding to particular geographic areas.

The Consolidated Federal Funds Report.[70] Federal funds data reported below were compiled from the *Consolidated Federal Funds Report, State and County Area (CFFR),* an annual compilation of federal expenditures disaggregated into various categories of funding obligations and outlays to counties and states. The *CFFR* is published by the Department of Commerce, Bureau of the Census, Government Division and covers federal government expenditures or obligations. Generally, federal grants and procurement data represent obligated funds. Direct payments (e.g., retirement and disability) and salaries and wages represent actual expenditures or outlays. Data in the *CFFR* are developed by aggregating available statistics on federal expenditures and obligations. Primary data sources for the *CFFR* are:

Federal Assistance Awards Data System,
Federal Procurement Data System,
Office of Personnel Management,
Department of Defense,
U.S. Postal System

For FY2003, the most recent data available, total direct federal expenditures and obligations to all states and territories presented in the *CFFR* totaled $2.1 trillion. This amount, however, excludes expenditures that could not be geographically distributed, all international and foreign payments, and federal outlay categories not covered by any of the reporting systems serving as data sources for the *CFFR*.[71] For some agencies, data for selected object categories could not be obtained. These include the procurement actions of the judicial and legislative branches of the federal government. Expenditures other than salaries and wages are not available for the Federal Deposit Insurance Corporation, National Credit Union Administration , and the Federal Savings and Loan Insurance Corporation.

Many agency grant programs make direct payments to state governments who administer the programs and then "pass through" the funds to local government (e.g., block grants, transportation funds, and other assistance programs). To the extent possible, data on sub-state grants are provided in the *CFFR* at the county or county-equivalent area. Outlays for sub-state programs include the following:

---

[70] Information presented in the section is taken from the Introduction to the *Consolidated Federal Funds Report, 2004* (pp. v-xviii).

[71] The largest unreported items were net interest on federal debt (estimated at $153 million for FY2003) and FY2003 outlays for the international affairs budget (estimated at $21 billion). Expenditures for the Central Intelligence Agency, the Defense Intelligence Agency, and the National Security Agency are excluded from coverage.

Food Stamps
National School Lunch Program
Special Supplemental Food Program for Women, Infants, and Children (WIC)
Handicapped Education-State Grants
Rehabilitation Services - Basic Support
Low-Income Home Energy Assistance
Social Services Block Grant
Block Grants for Prevention and Treatment of Substance Abuse.

The *CFFR* contains detailed methodological information on the availability, reliability, and coding of federal funds data. Readers are encouraged to review the *CFFR* for greater detail on the compiling of federal data for the *CFFR* for better understanding of the data presented here. Certain categories of spending are intentionally excluded in the *CFFR*, e.g., interest paid on the federal debt, international payments, and foreign aid, and some agencies do not submit data to any of the federal statistical reporting systems, (e.g., Central Intelligence Agency, Defense Intelligence Agency, and National Security Agency). Individual federal agency expenditures are also provided in *CFFR* tables. The agency data, however, are reported only at the state level. As noted above, some of these funds do go to individual counties and are, to the extent possible, accounted for in the *CFFR* direct expenditure data on the counties.

The *CFFR* also provides state-level data on direct loans, guaranteed loans, and insurance. These data are, with some exceptions, compiled from the Federal Assistance Award Data System (FAADS). Data on direct loans, guaranteed loans, and insurance are reported in the FAADS by state and county area, but are not disaggregated to the county level in the *CFFR*. For this report, CRS has not attempted to reconstruct FAADS and aggregate county level data on individual loan and insurance programs for the SJV or for Central Appalachia. Nonetheless, federal funding support for these functions may properly be regarded as part of "total federal assistance" going to the respective regions. Only data on direct federal expenditures and obligations are reported in the following tables in this chapter. **Appendix F**, however, provides federal direct expenditures and obligation for individual programs by SJV county. **Appendix F** also provides funding data for other federal assistance, (i.e., direct and guaranteed loans and insurance programs).

In the related comparison between the 68 Central Appalachian counties and the SJV counties also presented here, USDA's Economic Research Service (ERS) did compile data on some direct loans, guaranteed loans, and insurance and include that in the total figures. However, ERS data exclude programs for which most or all of their funding is reported only at the state or national level. For example, most of the large block grant program related to social services, employment, and training were excluded. Thus, these exclusions tend to understate the actual level of federal funding received by counties, particularly for the category of Human Resources. For these reasons, we recognize that the ERS data are not directly comparable to the *CFFR* data for the two regions in the following tables, even though the *CFFR* is the source for all the tables presented in this chapter.

Comparing FY2002 Federal Expenditures in the San Joaquin, the United States, and California. **Table 70** provides total and per capita amounts of federal direct expenditures and obligations in FY2002 for the SJV, individual counties in the SJV, and the two adjacent counties of Mariposa and Tuolumne. (**Table 71)** provide data for the ARC region). **Table 72** presents total and per capita federal expenditures in the SJV for FY2003, the most recent available. Analysis of federal direct expenditures data and various socioeconomic variables reveal several patterns.

According to a 2002 report, California residents paid over $58 billion more in federal taxes than the state received back in federal spending.[72] There are two primary reasons why Californians are net tax exporters. First, California's above-average income creates above-average federal income tax receipts. Second, the fastest growing portion of the federal budget is in Social Security and Medicare payments. California's population is significantly younger than the U.S. average, and thus has fewer recipients of payments from these programs. In contrast to Appalachia, with its higher proportion of those 65 and over, California's wealth and youthfulness may constitute positive attributes. A negative balance of payments could be viewed as one cost of these demographic advantages.[73]

In FY2002, the SJV received $15.64 billion dollars in federal direct expenditures and obligations. This was a per capita rate of $4,472. Total amounts to individual counties ranged from highs of $3.7 billion each in Fresno and Kern counties to a low of $500.4 million to Madera County. Per capita rates ranged from a high of $5,403 in Kern County to a low of $3,841 in Madera County. The per capita rate for the SJV was $2,178 less than the $6,650 per capita federal expenditure rate for the United States, and $1,406 less than the per capita rate for California ($5,878). The data further showed that each SJV county had a lower per capita rate of federal expenditure than either the United States or California. Most SJV counties were substantially below the national per capita rate of $6,650, ranging between $1,247 to $2,809 per capita lower. Individual SJV counties ranged from $2,037 (Madera) to $475 (Kern) less per capita than the rate for California in FY2002.

In every federal expenditure category (retirement and disability, other direct payments to individuals and others, grants, procurement contracts, and salaries and wages), the SJV had a lower per capita federal expenditure and obligation rate than the per capita rates for the United States and California. With a few exceptions, the SJV counties had per capita federal expenditure levels below the national per capita rate and state rates. In the category of retirement and disability spending, several SJV counties had rates near or slightly above the state average. For wage and salary expenditures, Kings and Kern counties had higher per capita rates than California or the United States.

---

[72] See California Institute for Federal Policy Research. *Special Report: California's Balance of Payments with the Federal Treasury, Fiscal Years 1981-2002*. Washington, DC. 2003. [http://www.calinst.org/pubs/balrpt02.htm]

[73] Ibid.

Of the total $15.64 billion in federal expenditures going to the SJV in FY2002, $5.71 billion was for retirement and disability payments. Retirement and disability programs include federal employee retirement and disability payments benefits, Social Security payments of all types, selected Veterans Administration programs, and selected other federal programs. The per capita rate for retirement and disability payments in the United States in FY2002 was $2,126. In the SJV, it was $1,632 per capita, with the rate ranging from a high of $1,732 in San Joaquin County to a low of $1,375 in Kings County. Direct payments to individuals other than for retirement and disability amounted to $3.41 billion in FY2002 for a per capita rate of $976 for the region. Other direct payments to individuals include such programs as crop insurance indemnity payments, legal services, Postal Service operations, food stamps, Federal Employee Workers Compensation, Unemployment Compensation Trust Fund payments, and Medicare payments. For the SJV, per capita payment for these other direct payment programs at $976 were lower than the rate for the United States ($1,464) and for California ($1,286).

Grants are the second largest category of federal expenditures in the SJV after retirement and disability. Grant expenditures to the SJV amounted to $3.87 billion in FY2002 for a per capita rate on $1,107. This rate is 22.5 % less than the rate for the United States ($1,430) and nearly 20% less than the rate for California ($1,369). As with virtually all of the *CFFR* categories, no individual SJV county had a per capita grant rate that was as high as the grant rate for either the United States or for California.

Contract procurement expenditures in the United States were $940 per capita. The per capita rate for the SJV was $260, over 72% less than the U.S. rate, and ranged from $593 per capita in Kern County to $26 per capita in Madera County. California has a slightly higher per capita rate for receiving federal contract expenditures than the United States, $990 per capita in FY2002. Federal salary and wage expenditures totaled $1.74 billion in the SJV, a per capita rate of $497, lower than the per capita rate for the United States ($690) and for California ($545). At $1,574, Kings County was distinctive in the SJV with its per capita rate for federal wage and salaries being nearly three times the SJV and California rates and more than double that of the United States.

Adjacent County Comparison. Mariposa especially and Tuolumne to a lesser extent had higher per capita rates of direct federal expenditure than the SJV. Mariposa's per capita rate across all the *CFFR* categories was $6,123, which was lower than the United States rate but higher than California's. Tuolumne's per capita rate was $5,317, higher than most SJV counties, but lower than the per capita rates for the United States and California. Retirement and disability and other direct payments were the two largest expenditure categories respectively. Federal wages and salaries are also a federal expenditure in Mariposa, with a per capita rate of $1,361, nearly twice the national rate and over twice the SJV rate.[74] The per capita

---

[74] Mariposa and Tuolumne are, respectively, "government-dependent" and "service-dependent" counties and are also characterized by large proportions of federal lands. Government dependent and service dependent counties are two USDA Economic Research (continued...)

rates for retirement and disability in Mariposa County ($2,823) and Tuolumne County ($2,998) were also significantly higher than the rates for the SJV, the United States, and California.

Metropolitan and Non-Metropolitan areas.[75] With the exception of Kings County, the eight counties comprising the SJV are metro counties as defined by the U.S. Bureau of the Census. Metro counties in the United States, on average, receive higher per capita federal expenditure rates than the national rate. This was not the case in the SJV. Kern County had the highest per capita rate of federal direct expenditures ($5,403) followed by Kings County ($5,321), a nonmetro county. Kern County had the second largest 2002 population after Fresno County, while Kings County had the second lowest population in the SJV.

Federal Funding in the SJV and the TVA for FY2003. **Table 72** presents the most recent *CFFR* data available for the SJV and **Table 73** presents the same CFFR data for the TVA. These data are directly comparable to the FY2002 data in **Table 70**.

Population in the SJV grew by nearly 65,000 residents between July 2002 and July 2003, a 1.8% increase. Total federal expenditures and obligations in the SJV grew by $908.1 million to $16.55 billion. The per capita rate for FY2003 increased to $4,645 from $4,472 in FY2002, a $173 increase (3.8%). Individual county per capita rates rose unevenly, ranging from $5 in Kern County to $292 in Kings County. Per capita rates rose for each *CFFR* category except for "other direct payments" which fell from $976 in FY2002 to $954 in FY2003. Retirement and disability payments increased from $1,632 per capita to $1,675.

Grant spending per capita increased for 2003 in Fresno County to $1,340, up from $1,180 in FY2002. Most expenditure categories rose slightly in each county. Salary and wages in Kings County increased from $1,574 in FY2002 to $2,051 in FY2003. Stanislaus County saw a drop of $10 per capita in federal wages and salaries between FY2002 and FY2003 and Kern County saw a $31 drop in per capita

---

[74] (...continued)
Service designations of non-metro counties based on a county's dominant economic activity. A government-dependent county receives at least 25% or more of its income from government. Service-dependent counties are non-metro counties where at least 50% or more of total income is from service sector employment (e.g., retail, business and professional, education, finance, insurance, and real estate).

[75] Rural areas are defined in the U.S. Bureau of the Census as places of less than 2,500 people, including rural portions of extended cities and areas outside incorporated places. Metro and non-metro areas are defined by OMB's Metropolitan Statistical Areas and Micropolitan Statistical Areas and are collectively referred to as Core Based Statistical Areas (CBSAs). Metro areas consist of (1) central counties with one or more urbanized areas and (2) outlying counties that are economically tied to the core counties as measured by worker commuting data. Outlying counties are included if 25% of workers living there commute to the core counties, or if 25% of the employment in the county consists of workers coming from the central counties. Non-metro counties are outside the boundaries of metro areas and are further subdivided into micropolitan areas centered on urban clusters of 10,000-50,000 residents, and all remaining "non-core" counties.

funding for contract procurement. In the category "other direct payments", Fresno County's per capita rate fell by $42, although its rate increased by $268 across all categories.

Per capita federal expenditure rates for the United States in 2003 across each *CFFR* category were substantially higher than the rates in the SJV. The per capita federal expenditure rate for the United States increased to $7,089 in FY2003 from $6,650 in FY2002, a 6.6% increase. The gap between per capita federal expenditure rates for the SJV and the United States increased by $266 over the FY2002 difference. The gap between the SJV per capita rate and the California rate also increased by $141. While population growth alone does not necessarily mean an increase in federal dollars going to a region, the population in California grew by 1% compared to population growth of 1.8% in the SJV between 2002-2003.

Per capita federal direct expenditure for FY2003 in the TVA was $7,505 (**Table 73**). This was $2,860 more per capita more than the SJV, $1,474 per capita more than the ARC area in FY2002, and $398 more per capita than the United States. In every *CFFR* expenditure category, federal funding in FY2003 for the TVA exceeded that of the SJV. With the exceptions of Alabama and Kentucky, however, the TVA areas had lower per capita rates of federal direct obligations than their respective states. Tennessee, all of whose counties are in the TVA, had a lower per capita rate of federal expenditure that the United States ($206 per capita less).

The 7 TVA states have counties that are also within the ARC area (in some states, TVA counties and ARC counties overlap). Comparing a state's ARC region to its TVA region in FY2002 shows that in all but two states (Mississippi and Tennessee) the TVA region's per capita expenditure exceeded the state's ARC region.

Comparing Federal Funding in the Appalachian Regional Commission Area to Federal Funding in the SJV. In FY2002, federal direct expenditures and obligations in the ARC area amounted to $138.07 billion compared to the SJV's total federal expenditure of $15.64 billion (**Table 70** and **Table 71**). The SJV received $2,342 per capita less (34.3%) than the ARC region in direct federal expenditures and obligations in FY2002. The ARC region received $783 per capita less than the national per capita rate in FY2002, while the SJV received $2,178 less than the national per capita rate.[76] Only six of the 13 ARC state Appalachian regions, however, matched or exceeded the ARC region's (Alabama, Kentucky,

---

[76] The ARC data presented here relied on April 2000 state and county population estimates in calculating per capita rates for 2002 federal funds data. The data on the SJV in **Table 70** used July, 2002 population estimates. If population growth was high in the ARC 2000-2002, the per capita figures in **Table 71** would be lower. Population growth in the ARC region, however, grew only 9.1% between 1990 and 2000. In the SJV, the population grew 5.6% between April 2000 and July 2002. Using 2000 population estimates for the San Joaquin would introduce a significant degree of bias by inflating the actual per capita rates. For example, using 2000 population estimates raises the per capita rate for federal funding in the San Joaquin from $4,472 to $4,736. With population growth generally slow in the ARC region, we judged that whatever bias may occur from using the 2000 estimates is likely to be relatively insignificant.

Pennsylvania, Tennessee, Virginia, and West Virginia) per capita rate. Individual ARC counties within the 13 states that comprise the ARC region may also receive lower per capita rates than their respective state rates, and some states with few Appalachian counties may receive disproportionate funding.[77] In only one state's ARC counties (Georgia) was the per capita rate of direct federal expenditures lower than that of the SJV.

Direct payments to individuals for retirement and disability is the largest category of federal spending in the ARC region followed by grants and other direct payments to individuals and direct payments other than to individuals.[78] Per capita payments in the SJV for retirement and disability averaged $1,632 in FY2002. In the ARC region, the per capita payment was $6,031, $883 less than the per capita rate nationally but $1,559 more than the per capita rate in the SJV. The ARC region's history of coal mining as well as the age of the ARC population, help explain the high per capita disability and retirement rates for the ARC relative to the SJV. The Black Lung Disability Trust fund, for example, is an important source of disability payments in Appalachia. Per capita grant funding in the ARC area for FY2002 was $1,229, which is $122 more than the SJV.

While there is significant variation among the Appalachian parts of the 13 states that comprise the ARC region, in FY2002, per capita federal payments in the ARC region as a whole ($6,031) exceeded the per capita rate of federal expenditure for every SJV county. The per capita rates in the ARC region for all *CFFR* categories of federal expenditure and obligation also exceeded those of the SJV, most by substantial amounts. Other patterns in federal funding in the ARC may be seen with procurement contracts. With the exception of Tennessee and Alabama, federal spending on procurement contracts is generally low and similar to the SJV. While the ARC region's per capita payment for procurement contracts is $644 compared to $260 in the SJV, Anderson County, Tennessee and Madison County, Alabama are home to the U.S. Department of Energy's Oak Ridge National Laboratory and Marshall Space Center respectively, skewing this category. Without Tennessee and Alabama's relatively high per capita rates for federal procurement dollars ($1,626 and $1,757 per capita respectively), the ARC's per capita rate for that category would decline, although it would still be higher than the level of the SJV. As discussed above, the potential for a few counties to skew overall regional per capita payments

---

[77] An Ohio newspaper, the *Columbus Dispatch*, conducted a review of 22,169 grants awarded from FY1966-FY1998 and found that none of the five counties receiving the most funds had ever been considered a Distressed county, the ARC designation for the poorest of Appalachian counties. Five poverty-stricken counties in Kentucky and West Virginia finish near the bottom of the study, receiving less than $1.3 million each. Aid to Maryland, New York, Pennsylvania, and South Carolina, states with few if any Distressed counties, totaled nearly $4.6 billion, more than a fourth of all ARC non-highway spending. See Ferenchik, Mark and Jill Riepenhoff. "Mountain money: Federal tax dollars miss the mark in core Appalachia." *Columbus Dispatch*, September 26, 1999. [http://www.sullivan-county.com/nf0/dispatch/moun_money.htm]

[78] The ARC data disaggregated non-retirement direct payments to individuals and "direct payments other than for individuals." For the SJV, these two categories were combined into "Other Direct Payments."

is increased when examining the entire 410 county ARC region. Below, we examine a relatively more homogenous group of Appalachian counties.

Table 70. Federal Direct Expenditures and Obligations in the SJV, FY2002

(thousands of dollars)

San Joaquin Counties	Population (July, 2002)	Total Federal Direct Expenditures and Obligations	Per Capita[a]	Retirement and Disability		Other Direct Payments		Grants		Procurement		Salaries and Wages	
				Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]
SJV	3,497,911	15,641,645	4,472	5,708,730	1,632	3,413,141	976	3,872,383	1,107	907,841	260	1,738,552	497
Fresno	834,632	3,775,225	4,523	1,319,908	1,581	791,021	948	985,257	1,180	184,064	221	494,975	593
Kern	694,059	3,749,816	5,403	1,196,532	1,724	766,061	1,104	714,633	1,030	411,451	593	661,139	953
Kings	135,043	718,549	5,321	185,731	1,375	158,826	1,176	135,212	1,001	26,168	194	212,612	1,574
Madera	130,265	500,411	3,841	219,150	1,682	138,267	1,061	124,143	953	3,402	26	14,450	111
Merced	225,398	891,366	3,955	364,412	1,617	206,402	916	251,889	1,118	30,047	133	38,615	171
San Joaquin	614,302	2,557,601	4,163	1,064,242	1,732	538,645	877	654,351	1,065	127,490	208	172,874	281
Stanislaus	482,440	1,889,937	3,917	805,704	1,670	426,606	884	473,185	981	105,400	218	79,042	164
Tulare	381,772	1,558,740	4,083	553,051	1,449	387,313	1,015	533,713	1,398	19,819	51	64,845	170
Adjacent Counties													
Mariposa	17,195	105,292	6,123	48,353	2,812	19,802	1,152	10,368	603	3,352	195	23,416	1,362
Tuolumne	55,850	296,938	5,317	163,387	2,925	64,652	1,158	34,849	624	13,509	242	20,540	368
United States and California													
U.S.	288,368,698	1,917,637,403	6,650	612,995,927	2,126	422,239,079	1,464	412,371,161	1,430	270,965,430	940	199,065,805	690
California	35,116,033	206,401,495	5,878	59,256,019	1,687	45,165,873	1,286	48,083,694	1,369	34,752,544	990	19,143,365	545

Source: *Consolidated Federal Funds Report, FY 2003.*

a. Per capita amounts are reported in actual dollars.

Table 71. Federal Direct Expenditures and Obligations in the Appalachian Regional Commission, FY2002

(thousands of dollars)

San Joaquin Counties	Population (April, 2000)	Total Federal Direct Expenditures and Obligations	Per Capita[a]	Retirement and Disability[b]		Other Direct Payments		Grants		Procurement		Salaries and Wages	
				Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]
Appalachian Region	22,894,017	138,071,000	6,031	57,864,000	2,527	28,104,000	1,228	28,128,000	1,229	14,749,000	644	9,227,000	403
Appalachian Alabama	2,837,224	20,989,000	7,398	7,363,000	2,595	3,532,000	1,245	3,122,000	1,100	4,985,000	1,757	1,988,000	701
Appalachian Georgia	2,207,531	7,232,000	3,276	3,684,000	1,669	1,474,000	668	1,328,000	602	302,000	137	444,000	201
Appalachian Kentucky	1,141,511	7,223,000	6,328	3,230,000	2,830	1,358,000	1,190	2,242,000	1,964	88,000	77	304,000	266
Appalachian Maryland	236,699	1,163,000	4,913	605,000	2,556	303,000	1,280	116,000	490	66,000	279	73,000	308
Appalachian Mississippi	615,452	3,450,000	5,606	1,433,000	2,328	793,000	1,288	861,000	1,399	153,000	249	210,000	341
Appalachian New York	1,072,786	6,219,000	5,797	2,530,000	2,358	1,118,000	1,042	1,634,000	1,523	653,000	609	283,000	264
Appalachian North Carolina	1,526,207	7,585,000	4,970	3,790,000	2,483	1,480,000	970	1,713,000	1,122	233,000	153	368,000	241
Appalachian Ohio	1,455,313	7,106,000	4,883	3,268,000	2,246	1,568,000	1,077	1,794,000	1,233	181,000	124	296,000	203
Appalachian Pennsylvania	5,819,800	37,124,000	6,379	15,848,000	2,723	9,041,000	1,553	7,266,000	1,248	2,652,000	456	2,317,000	398
Appalachian South Carolina	1,028,656	4,450,000	4,326	2,327,000	2,262	852,000	828	851,000	827	217,000	51	203,000	197
Appalachian Tennessee	2,479,317	17,808,000	7,183	6,427,000	2,592	3,008,000	1,213	3,012,000	1,215	4,031,000	1,626	1,331,000	537
Appalachian Virginia	665,177	4,362,000	6,558	1,900,000	2,856	796,000	1,197	890,000	1,338	587,000	882	189,000	284
West Virginia	1,808,344	13,361,000	7,389	5,460,000	3,019	2,780,000	1,537	3,298,000	1,824	602,000	333	1,221,000	675
U.S.	281,421,906	1,917,637,000	6,814	612,996,000	2,178	422,239,000	1,500	412,371,000	1,465	270,965,000	963	199,066,000	707

Data Source: U.S. Department of Commerce, Census Bureau, Consolidated Federal Funds Report, 2002 (downloaded from [http://www.census.gov/govs/www/cffr.html] on October 1, 2003).

a. Per capita amounts are reported in actual dollars.

b. Category includes Black Lung Benefits Program payments

Table 72. Federal Direct Expenditures and Obligations in the SJV, FY2003

(thousands of dollars)

San Joaquin Counties	Population (July, 2003)	Total Federal Direct Expenditures and Obligations	Per Capita[a]	Retirement and Disability		Other Direct Payments		Grants		Procurement Contracts		Salaries and Wages	
				Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]
SJV	3,562,797	16,549,751	4,645	5,966,870	1,675	3,397,805	954	4,319,021	1,212	962,296	270	1,908,759	536
Fresno	850,325	4,074,176	4,791	1,372,950	1,615	770,666	906	1,139,360	1,340	251,682	296	539,518	634
Kern	713,087	3,856,033	5,408	1,249,312	1,752	736,277	1,033	768,614	1,078	401,096	562	700,733	983
Kings	138,564	777,751	5,613	199,699	1,441	121,100	874	144,740	1,045	26,959	195	284,254	2,051
Madera	133,463	522,284	3,913	232,627	1,743	128,968	966	138,528	1,038	6,653	50	15,508	116
Merced	231,574	965,503	4,169	386,083	1,667	219,077	946	290,309	1,254	22,694	98	46,339	200
San Joaquin	632,760	2,675,054	4,228	1,104,466	1,745	568,137	898	730,493	1,154	94,811	150	177,147	280
Stanislaus	492,233	2,047,853	4,160	841,226	1,709	470,565	956	549,591	1,117	109,581	223	75,890	154
Tulare	390,791	1,634,097	4,182	580,507	1,485	383,015	980	557,386	1,426	48,820	125	69,370	178
Adjacent Counties													
Mariposa	17,803	134,623	7,562	50,207	2,820	23,120	1,299	15,258	857	19,592	1,100	26,446	1,485
Tuolumne	56,755	332,012	5,850	169,574	2,988	70,706	1,246	58,149	1,025	11,408	201	22,174	391
United States and California													
U.S.	290,809,777	2,061,485,972	7,089	636,238,733	2,188	446,119,217	1,534	441,037,633	1,517	327,413,076	1,126	210,677,312	724
California	35,484,453	219,705,707	6,192	61,235,997	1,726	49,480,339	1,394	51,328,805	1,447	37,049,547	1,044	20,611,019	581

Source: *Consolidated Federal Funds Report, FY2003* (September 2004)

a. Per capita amounts are reported in actual dollars

Table 73. Federal Direct Expenditures and Obligations in the Tennessee Valley Authority Area FY2003

(thousands of dollars)

Tennessee Valley Authority	Population (July, 2003)	Total Federal Direct Expenditures and Obligations	Per Capita[a]	Retirement and Disability		Other Direct Payments		Grants		Procurement		Salaries and Wages	
				Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]	Total	Per Capita[a]
Tennessee Valley Authority	40,721,886	305,611,715	7,505	94,163,755	2,312	53,831,196	1,322	54,483,644	1,338	62,626,877	1,538	40,533,244	995
Alabama	4,500,752	30,870,869	6,859	12,232,032	2,718	7,698,399	1,710	6,649,139	1,477	7,067,435	1,570	3,223,864	716
Alabama TVA	1,008,699	11,073,243	10,978	2,753,696	2,730	1,128,282	1,119	979,344	971	5,098,290	5,054	1,113,632	1,104
Georgia	8,684,715	51,910,196	5,977	16,665,866	1,919	11,426,056	1,316	10,561,235	1,216	5,242,532	604	8,014,506	923
Georgia TVA	388,311	1,582,215	4,075	833,673	2,147	373,533	962	299,709	772	26,210	67	49,089	126
Kentucky	4,117,827	31,153,085	7,565	10,168,614	2,469	6,118,924	1,486	6,634,063	1,611	5,119,069	1,243	3,112,416	756
Kentucky TVA	631,071	5,984,846	9,484	1,557,192	2,468	819,707	1,299	748,566	1,186	1,638,779	2,597	1,220,602	1,934
Mississippi	2,881,281	21,740,611	7,545	6,922,911	2,403	4,903,648	1,702	5,318,478	1,846	2,625,647	911	1,969,926	684
Mississippi TVA	1,073,213	5,673,189	5,286	2,371,279	2,210	1,251,956	1,167	1,451,994	1,353	266,808	249	331,152	309
North Carolina	8,407,248	51,766,362	6,157	18,805,741	2,237	11,012,283	1,310	11,613,214	1,381	3,794,455	451	6,540,669	778
North Carolina TVA	184,501	947,143	5,134	428,782	2,324	180,863	980	183,547	995	155,176	841	25,775	140
Tennessee TVA[b]	5,841,748	40,311,139	6,901	13,743,588	2,353	7,039,653	1,205	8,648,710	1,481	7,521,940[c]	1,288	3,357,249	575
Virginia	7,386,330	82,453,984	11,163	19,553,290	2,647	9,420,394	1,275	7,885,964	1,068	30,838,710	4,175	14,755,627	1,998
Virginia TVA	116,942	1,015,702	8,686	359,123	3,071	155,897	1,333	158,820	1,358	299,261	2,559	42,601	364
United States	290,080,977	2,061,485,972	7,107	636,238,733	2,193	446,119,217	1,538	441,037,633	1,520	327,413,076	51	210,677,312	726

Source: *Consolidated Federal Funds Report, FY 2003.*

a. Per capita amounts are reported in actual dollars.

b. All Tennessee counties are within the Tennessee Valley Authority.

c. Procurement figures for Tennessee are based on FY2000 data. TVA has not reported procurement data since FY2000.

Federal Funding in Appalachia and the San Joaquin: The Economic Research Service Data. The data for the SJV and the ARC discussed above are comparable and reveal significant variation both within each region and between the two regions. In this section, we examine FY2000 federal funding data in the eight-county SJV region and Appalachia based on data generated by researchers at the U.S. Department of Agriculture's Economic Research Service (ERS). ERS has studied federal funding distribution in several regions of the United States using functional categories developed from the *CFFR* object codes.[79] Appalachia, as ERS has defined it, is a 246 county area in 12 states, as opposed to the ARC area of 410 counties in 13 states (ERS excluded South Carolina). Central Appalachia as defined by ERS is a 68-county, largely rural region in Kentucky, Tennessee, Virginia, and West Virginia (for a list of the counties, see **Appendix D**).[80] This area comprises the counties for which certain socioeconomic data are provided in Chapter 2.

Central Appalachia contains some of the poorest counties in the entire ARC region with 45 of its 68 counties defined by the ARC as Distressed counties (see description of ARC county categories in Chapter 2). As the data in Chapter 2 demonstrate, there are socioeconomic parallels between the SJV and Central Appalachia in terms of poverty and unemployment. The area is also heavily dependent on low-wage, low-skilled service sector employment. Like the SJV, Central Appalachia has long seen many of its better educated residents leave for more attractive economic opportunities elsewhere.

---

[79] See Bagi, Faqir S., Richard Reeder, and Samuel Calhoun. "Federal funding's unique role in Appalachia." *Rural Development Perspectives*, 14(1), May, 1999; Reeder, Richard, Faqir Bagi, and Samuel Calhoun. Which federal programs are most important for the Great Plains?" *Rural Development Perspectives*, 113(1), June, 1998.

[80] The Economic Research Service's Central Appalachian region is smaller by 164 counties than Appalachia as defined by the ARC (410 counties) and 147 counties smaller than the ARC defined region of Central Appalachia. ERS defined Appalachia following a modified version of the counties identified in Donald J. Bogue and Calvin L. Beale's, *Economic Areas of the United States* (Free Press, 1961). The ARC region includes the entire State of West Virginia, and part of 11 other States (from north to south): New York, Pennsylvania, Ohio, Maryland, Virginia, Kentucky, Tennessee, North Carolina, Georgia, Alabama, and Mississippi. One county in Kentucky and two in Virginia were dropped from the list identified by Bogue and Beale because these counties are not under ARC's jurisdiction. Appalachia is further subdivided into subregions. Northern Appalachia includes 2 counties in Maryland, 23 in Ohio, 37 in Pennsylvania, and 46 in West Virginia. Of these, 34 are metro (urban) and 74 non-metro (rural) counties. In other words, almost one-third (32 percent) of counties in this region are urban counties, a nd thus this subregion is the most urbanized of the three subregions. Central Appalachia includes 43 counties in Kentucky, 9 in Tennessee, 7 in Virginia, and 9 in West Virginia. Of these, only 6 (9%) counties are metro, and the remaining 62 are non-metro (rural). Thus, Central Appalachia is more rural than the rest of Appalachia. Southern Appalachia includes 10 counties in Georgia, 16 in North Carolina, 28 in Tennessee, and 16 in Virginia. Almost one out of every four (24%) counties in this subregion is urban (metro). So, while southern Appalachia is also predominantly rural, it is much more urbanized than central Appalachia. See Bagi, Faqir, Richard Reeder, and Samuel Calhoun. "Federal Funding in Appalachia and its Three Subregions." *Rural America*, Volume 17 (4). Winter 2002.

ERS combined various *CFFR* categories into 6 broad functional categories of different types of federal funding. ERS data, however, provide a somewhat different picture of federal funding because they categorize the data differently. The data for FY2000 covered 1,165 programs, but the data were not reliable at the county level for every federal program. ERS excluded federal programs for which 25% or more of their funding went to state capitals, because the states may redistribute these funds to some or all counties and Census data do not reveal the amount of this redistribution. ERS analysts also excluded programs for which most or all of the funding is reported only at the state or national level. Thus, most of the large block grant programs related to social services, employment, and training were excluded from their analyses. Relative to **Table 74** and **Table 75** below, these exclusions understate the amount of federal funding received, particularly for human resource programs. For FY2000, ERS determined that the data were reliable at the county level for 703 federal programs. These programs, accounted for $1.79 trillion natiowide, or about 92% percent of the total federal funds reported by the Bureau of the Census for FY2000.

In the remainder of this chapter, we present data on the SJV and Central Appalachia based on ERS's functional categories. Also provided are 10 maps (**Figures 9-18**) based on these ERS data. It should be emphasized that **Tables 74** and **Table 75** cannot be directly compared to **Tables 70** and **71**. They provide a different perspective on similar, but not identical, data. For example, unlike data in **Tables 70** and **71**, the ERS data exclude large block grant programs. Interpretations of any of these tables should be made with caution because federal funds data are only as good as the information each agency supplies to the U.S. Bureau of the Census. In some cases, as with Medicaid, the data are based not on actual outlays that go to places, but on estimates based on other information, which may involve errors. In other cases, like procurement, expenditures may be reported only at the location of prime contractors or primary subcontractors and ignore further subcontracting that disperses the impact of expenditures. For example, defense procurement, which primarily benefitted Appalachian metro areas and government-dependent nonmetro areas, may involve subcontracting that disperses the benefits broadly to some other areas.

The ERS functional categories for federal programs include:

> *Agriculture and Natural Resources* including agricultural assistance, agricultural research and services, forest and land management, and water/recreation resources.
>
> *Community Resources* include business assistance, community facilities, community and regional development, environmental protection, housing, Native American programs, and transportation;
>
> *Defense and Space* including aeronautics and space, defense contracts, and payroll/administration;
>
> *Human Resources* including elementary and secondary education, food and nutrition, health services, social services, training, and employment;

Income Security including medical and hospital benefits, public assistance and unemployment compensation, retirement, and disability — including Social Security; and

National Functions including criminal justice and law enforcement, energy, higher education and research, and all other programs excluding insurance.

The ERS data show that the SJV received a total of $16.33 billion in federal expenditures in FY2000 with a per capita rate of $4,944 (**Table 74**). Income Security programs represent the largest category of expenditure ($9.48 billion) with a per capita rate of $2,870. Per capita rates varied slightly in this category, with San Joaquin County receiving the highest per capita rate in the SJV ($3,093). San Joaquin County also had a higher per capita rate of Community Resources expenditure ($1,018) than did the SJV ($862). Human Resources programs received the lowest level of federal expenditure in the SJV ($600.8 million) with a per capita rate of $182.

The size of the agricultural sector in the SJV is reflected in federal expenditures in the SJV. In FY2000, the SJV received $782.4 million in the category of Agriculture and Natural Resources with a per capita rate of $237. Kern at $420, Kings at $316, and Fresno at $313 had the highest per capita rates in this category of expenditure. San Joaquin County and Stanislaus County had the lowest per capita rates, $64 and $57 respectively.

Defense and Space expenditures were highly localized in Kern and Kings counties. These two counties received all but $169.6 million of the $1.24 billion going to the SJV for this category, and thus skew the distribution. The per capita rate in Kern and Kings counties was $1,189 and $2,196 respectively. The average per capita rate of expenditure for Defense and Space in the other six SJV counties was $51. Procurement contracts and wages and salaries associated with Edwards Air Force Base and the Naval Petroleum Reserve in Kern County and Lenmoore Naval Air Station in Kings County are the significant factors in these high rates for Kern and Kings counties. (**Figure 14**).

Per capita rates of federal expenditure among the six categories were somewhat lower in the SJV than the per capita rates for California (**Table 74**). California had a per capita rate of federal expenditure of $5,340 compared to the SJV's rate of $4,944. Income Security per capita in the state and SJV were nearly the same. Defense and Space payments per capita were over twice as high in California as the SJV. Agriculture and Natural Resources expenditures per capita were nearly six times greater in the SJV as the state. Community Resources rate per capita were nearly the same in the SJV as the state while National Functions were $300 more per capita in the state than in the SJV.

The per capita federal expenditure rate in Mariposa County was $748 more than the SJV. Per capita rates in Mariposa County for Income Security and National Functions were also higher than the rates for the SJV. Income Security per capita in

Mariposa County was nearly $1,000 higher than the SJV and National Functions brought Mariposa's per capita rate in that category to $1,505, over three times the rate in the SJV. The map in **Figure 14** shows the federally owned land in Mariposa and Tuolumne counties which contributes to high federal expenditures for National Functions in Mariposa. The per capita expenditure rate in Tuolumne County was $116 higher than the SJV's rate. Like Mariposa County, Tuolumne County had a per capita rate of $4,057 for Income Security, which was significantly higher than that of the SJV. Among other factors, this reflects the higher proportion of those over 65 in both counties' population.

Per capita data for Appalachia show distinct differences from those for the SJV (**Table 75**). Data are provided for three subregions of Appalachia: North, South, and Central. These data also reveal distinctive patterns among the three subregions. The per capita rate for federal expenditure in the smaller Appalachian region that ERS delimited was $6,044 in FY2002. The 57 metropolitan counties within this region had a per capita rate of federal expenditure of $6,562 and the 189 non-metropolitan counties had a per capita rate of $5,416. This is consistent with national patterns of federal expenditure, which also show generally higher per capita rates in metro areas as opposed to non-metro areas. Metro, non-metro, and Appalachia as a whole each had per capita expenditure rates higher than the rate for the SJV ($4,944). By a significant margin, the highest per capita rate of federal expenditure among the three Appalachian subregions was in Central Appalachia. Per capita expenditure in that region was $7,730. Per capita rates in North Appalachia and South Appalachia were $5,951 and $5,305 respectively. The high rate of Central Appalachia's metro counties accounts for the high rate overall. Central Appalachia's metro rate per capita was $15,455 compared to its non-metro rate of $6,292. This non-metro rate, however, is the highest among the three subregions, and is $876 more per capita than the rate for the Appalachian region as a whole.

As was the case for the United States, Appalachia and each of its subregions had the highest federal expenditures for Income Security programs. The per capita rate for Income Security expenditures in Appalachia was $4,239 compared to a rate of $3,276 in the United States. In the SJV, the Income Security per capita rate was $2,870. Central Appalachia's non-metro counties had the highest rate per capita rate of the three regions for this category, $5,135, substantially higher than the non-metro rates in the other two regions, as well as the region-wide rate of $4,239.

National Functions, located largely in Central Appalachia's metro-counties, account for the disproportionate per capita rate for that subregion. The per capita rate for National Functions in Central Appalachia was $7,097 compared to a region-wide per capita rate of $865, a higher rate than that of the United States ($822). If Central Appalachia's high rate is discounted, Appalachia's National Function per capita rate would fall to $784. West Virginia's universities and the 1995 completion of a Federal Bureau of Investigation research center in Clarksburg were major factors in Central Appalachia's high metro per capita rate in this category. The 17 metro counties in South Appalachia also had a per capita rate of expenditures for National Functions, $1,225. The per capita rate for National Functions in the SJV was $417.

Per capita rates for Human Resources, Defense and Space, and Community Resources in the SJV were higher than the rates for these categories in Appalachia,

although the rates are significantly different within Appalachia's metro and non-metro areas and vary across the three subregions. The per capita federal expenditure rate for Human Resources was $119 in Appalachia, the same as for the United States. For the SJV, per capita expenditure was $182 for this category. For Community Resources, Appalachia had a per capita expenditure rate of $504 compared to the SJV's rate of $862. As noted above, just two counties (Kern and Kings) account for high rates of Defense and Space expenditures in the SJV. The map in **Figure 14** shows the sources of federal expenditure for this category. In Appalachia, the rate for this category is $282 compared to $376 in the SJV. Again, the rate in Central Appalachia's metro counties skews the regional rate. Central Appalachia's 62 non-metro counties had a Defense and Space expenditure rate per capita of $103. Its 6 metro counties had a per capita rate of $3,655.

Per capita expenditures for Agriculture and Natural Resources are very low compared to the SJV, although South Appalachia's per capita rate for this category was $56 compared to Stanislaus County's per capita rate of $57. For the Appalachian region as a whole, the per capita rate for Agriculture and Natural Resources expenditures was $36 compared to a per capita rate of $237 in the SJV.

Table 74. Per Capita Federal Funds By ERS Function for the SJV, FY2000

(thousands of $)

County /Area	Population 2000	All Federal funds	Per Capita*	Agriculture and natural resources		Community resources		Defense and space		Human resources		Income security		National functions	
				Total	Per Capita*	Total	Per Capita*	Total	Per Capita*	Total	Per Capita*	Total	Per Capita*	Total	Per Capita*
SJV	3,302,792	16,328,050	4,944	782,449	237	2,848,419	862	1,240,550	376	600,761	182	9,478,591	2,870	1,377,275	417
Fresno	799,407	3,844,718	4,809	250,047	313	630,637	789	61,910	77	172,929	216	2,186,739	2,735	542,455	679
Kern	661,645	4,059,857	6,136	277,768	420	647,644	979	786,600	1,189	118,831	180	1,937,870	2,929	291,142	440
Kings	129,461	729,061	5,632	40,875	316	61,494	475	284,262	2,196	23,508	182	299,322	2,312	19,599	151
Madera	123,109	495,802	4,027	26,959	219	83,715	680	1,461	12	16,698	136	350,601	2,848	16,367	133
Merced	210,554	956,131	4,541	55,937	266	166,465	791	8,992	43	44,129	210	599,921	2,849	80,686	383
San Joaquin	563,598	2,697,883	4,787	36,257	64	573,484	1,018	90,602	161	86,303	153	1,743,340	3,093	167,897	298
Stanislaus	446,997	1,968,630	4,404	25,547	57	395,539	885	4,172	9	65,329	146	1,321,930	2,957	156,113	349
Tulare	368,021	1,575,968	4,282	69,059	188	289,441	786	2,551	7	73,034	198	1,038,868	2,823	103,016	280
Adjacent Counties															
Mariposa	17,130	97,502	5,692	67	4	3,107	181	310	18	1,783	104	66,456	3,880	25,778	1,505
Tuolumne	54,501	281,308	5,162	101	2	27,144	498	600	11	3,565	65	221,115	4,057	28,783	528
California															
California	33,871,648	180,871,138	5,340	1,468,879	43	28,008,452	827	25,518,476	753	4,619,704	136	96,975,231	2,863	24,280,397	717

Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census Consolidated Federal Funds Report, FY2000.
* Per capita funds reported in actual dollars

Table 75. Per Capita Federal Funds for Appalachia by ERS Function and Region, FY2000

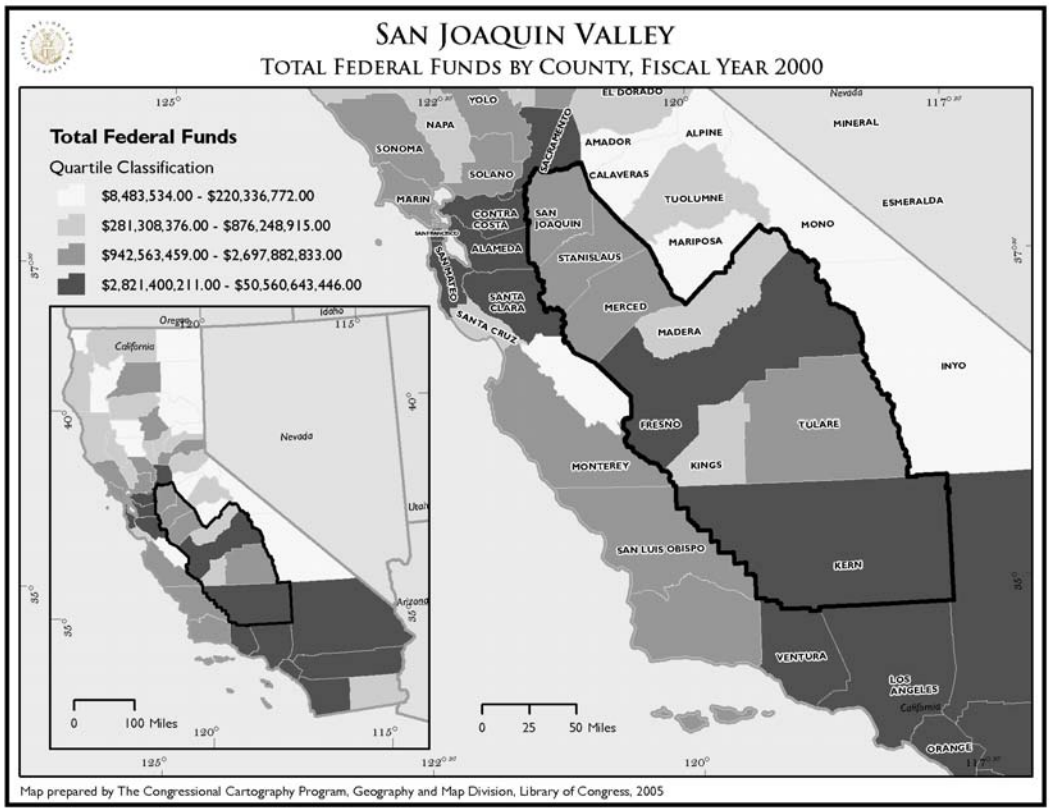
Appalachia and its Subregions (# of counties)	Total Federal funds per capita	Agriculture and Natural Resources	Community Resources	Defense and Space	Human Resources	Income Security	National Functions
United States	5,690	116	680	678	119	3,276	822
Metro	5,743	39	728	771	113	3,182	910
Nonmetro	5,481	427	486	303	143	3,656	467
Appalachia (246)	6,044	36	504	282	119	4,239	865
Metro (57)	6,562	32	571	432	104	4,251	1,172
Nonmetro (189)	5,416	40	423	99	138	4,224	491
North Appalachia (108)	5,951	26	546	276	109	4,270	724
Metro (34)	6,325	16	592	370	104	4,445	798
Nonmetro (74)	5,248	45	460	99	118	3,942	585
South Appalachia (70)	5,305	56	467	81	102	3,754	845
Metro (17)	5,742	70	540	68	102	3,736	1,225
Nonmetro (53)	4,807	40	383	97	103	3,773	411
Central Appalachia (68)	7,730	37	401	661	193	4,974	1,465
Metro (6)	15,455	56	413	3,655	128	4,105	7,097
Nonmetro (62)	6,292	33	399	103	206	5,135	416

Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Bureau of the Census's *Consolidated Federal Funds Report, FY2000.*

Geographical Information System Mapping of Federal Funds Data

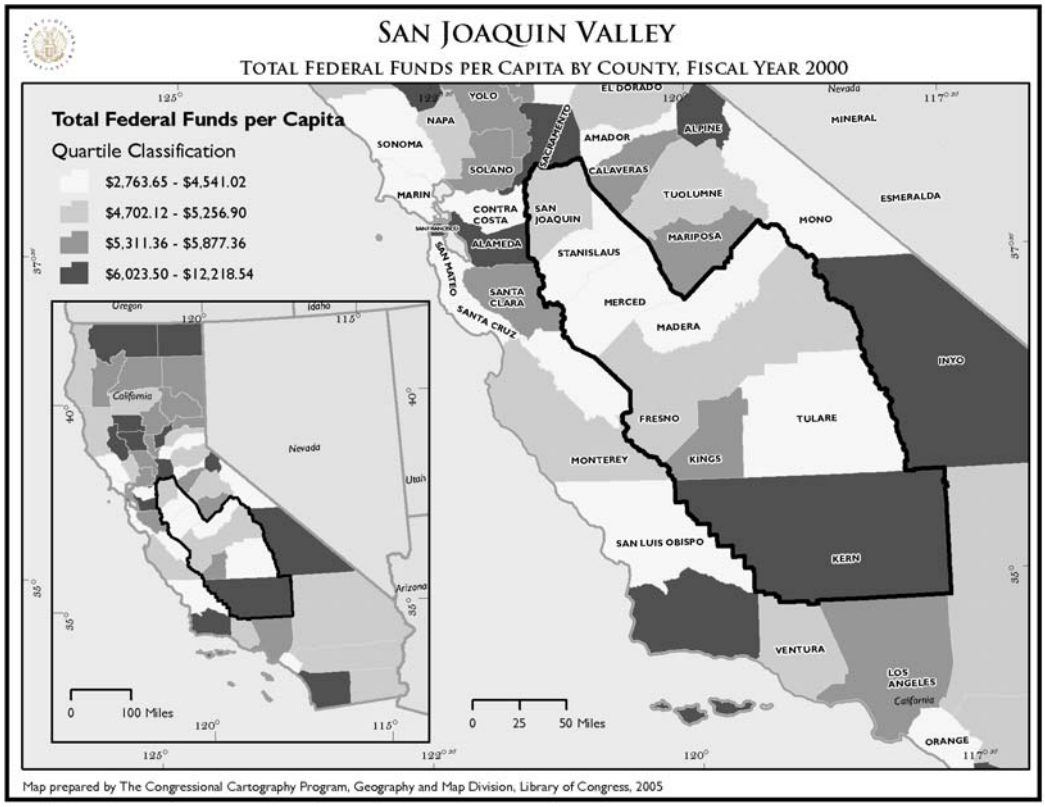
Figures 9-18 below map the federal funds data for each of the six ERS categories in **Table 75**. Also presented are maps for total federal funds by county and per capita federal funds by county (**Figure 10** and **Figure 11**). Each map also provides an inset of the same data to contrast the SJV with California's other 58 counties. **Figure 15** is a map showing federal lands and military installations and **Figure 17** provides a proportional county map for the ERS categories across all counties in the state.

Figure 9. Total Federal Assistance by County, FY2000



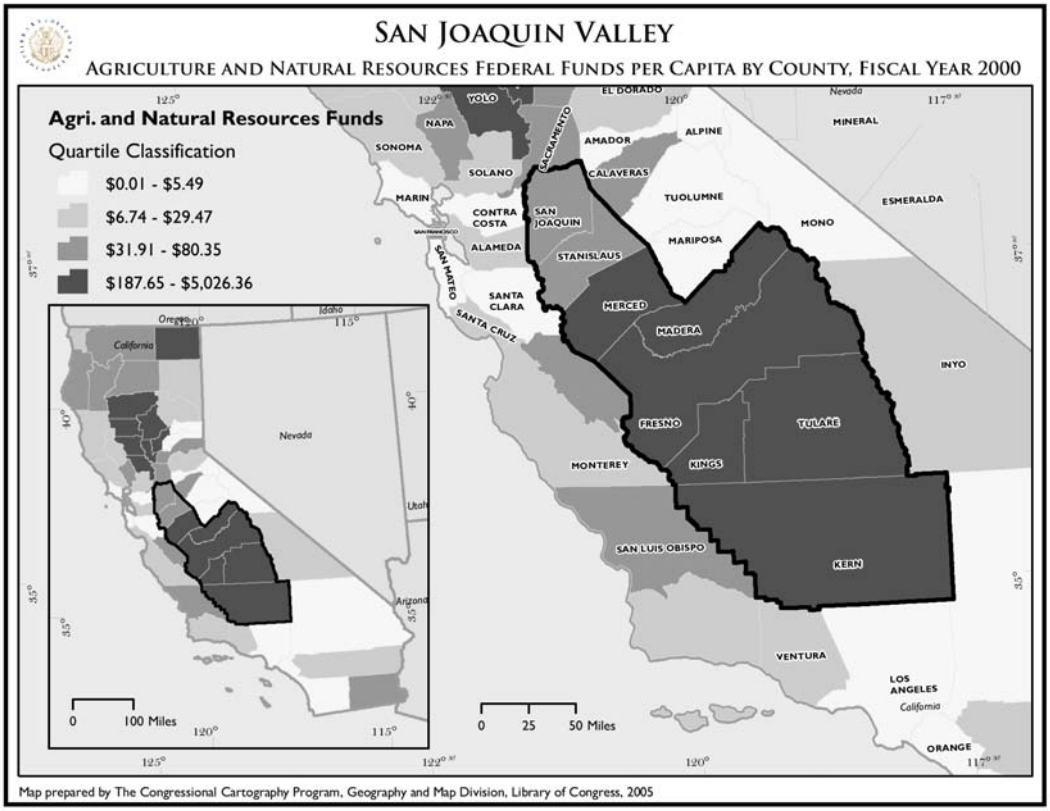
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*.

Figure 10. Total Federal Assistance Per Capita, FY2000



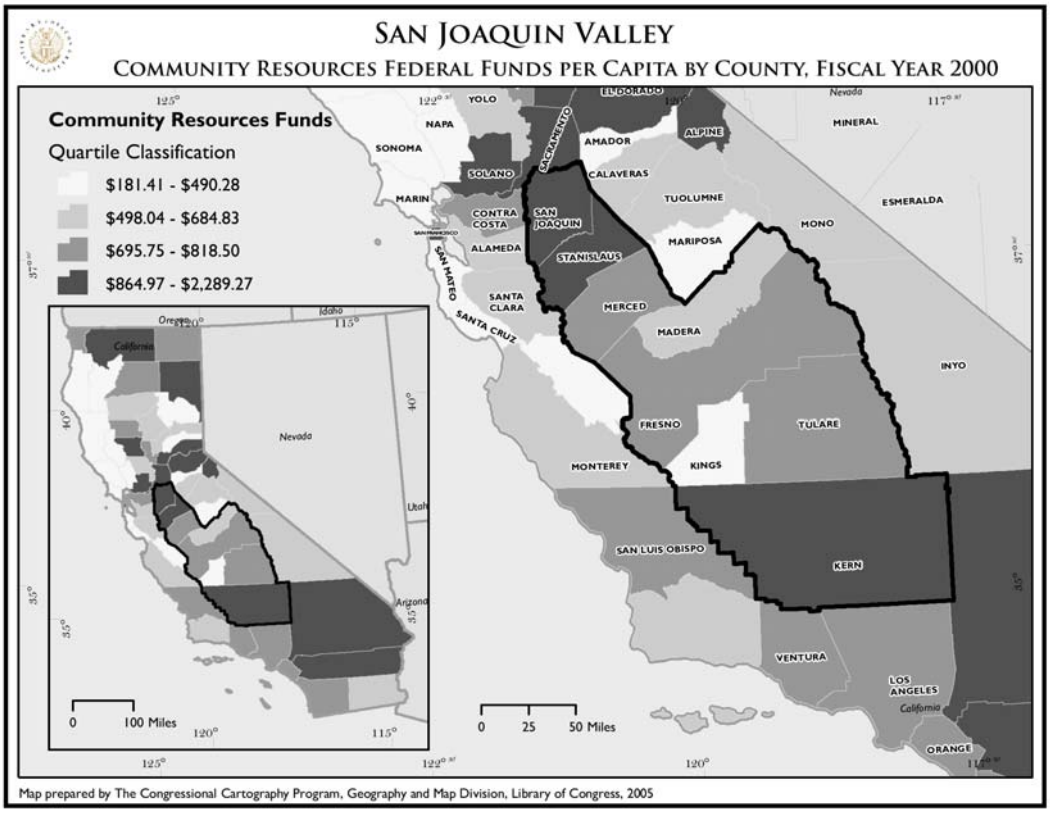
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*.

Figure 11. Federal Assistance per Capita for Agriculture and Natural Resources by County, FY2000



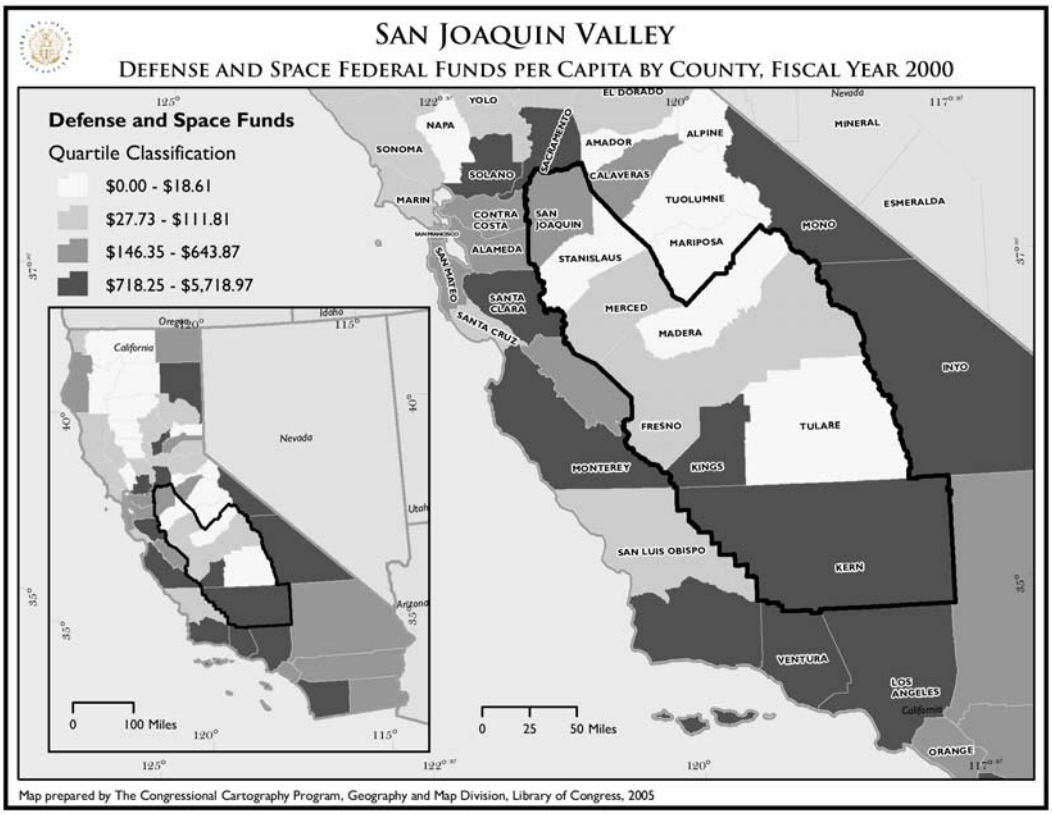
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Figure 12. Federal Assistance Per Capita for Community Resources



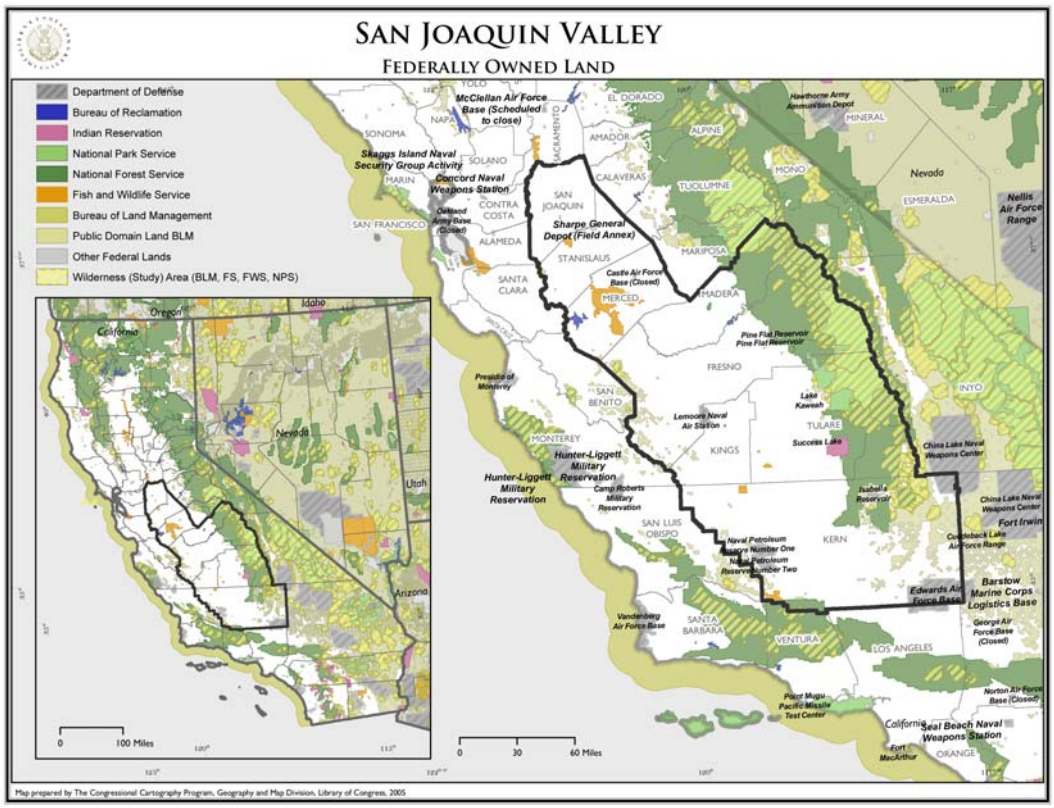
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Figure 13. Federal Assistance Per Capita for Defense and Space by County, FY2000



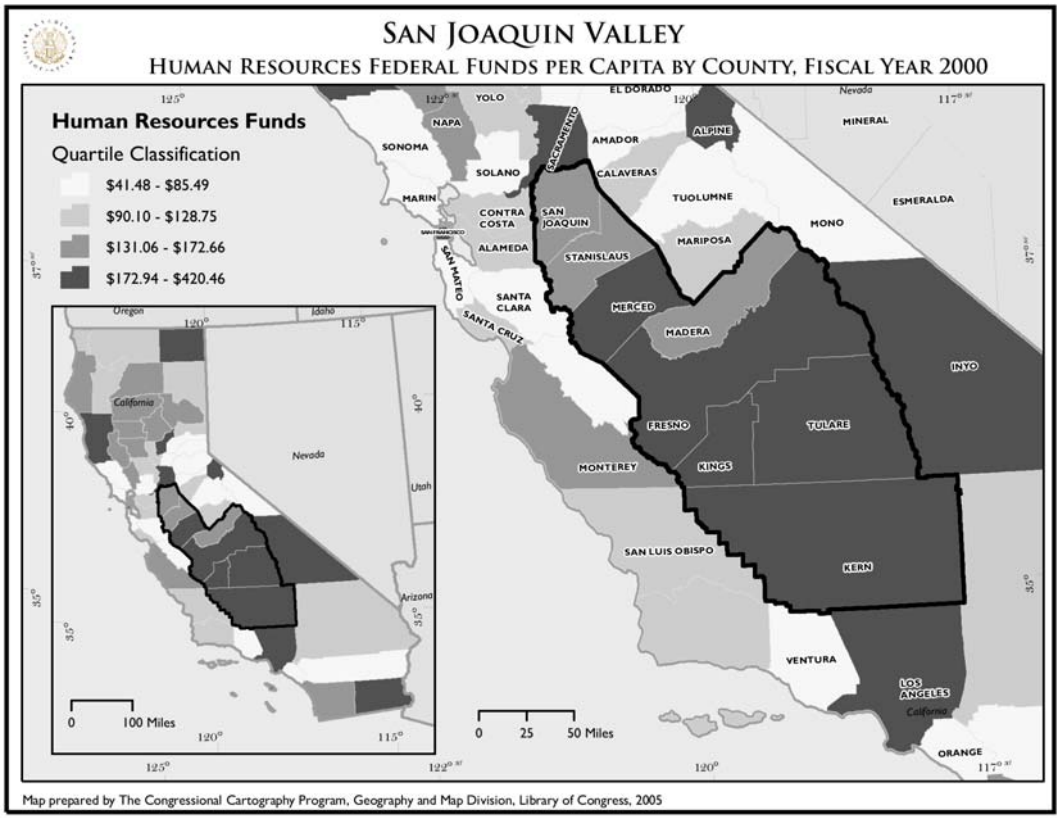
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Figure 14. Federally Owned Land in the SJV



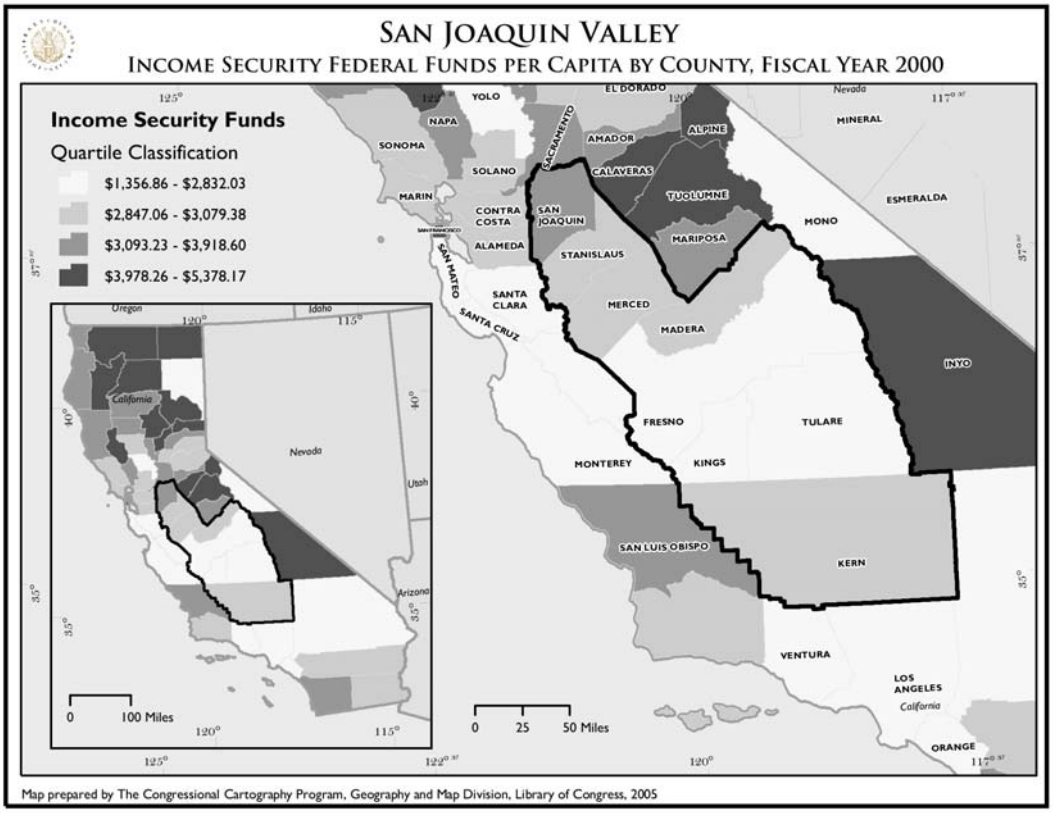
Data Source: U.S. Geological Survey

Figure 15. Federal Assistance Per Capita for Human Resource by County, FY2000



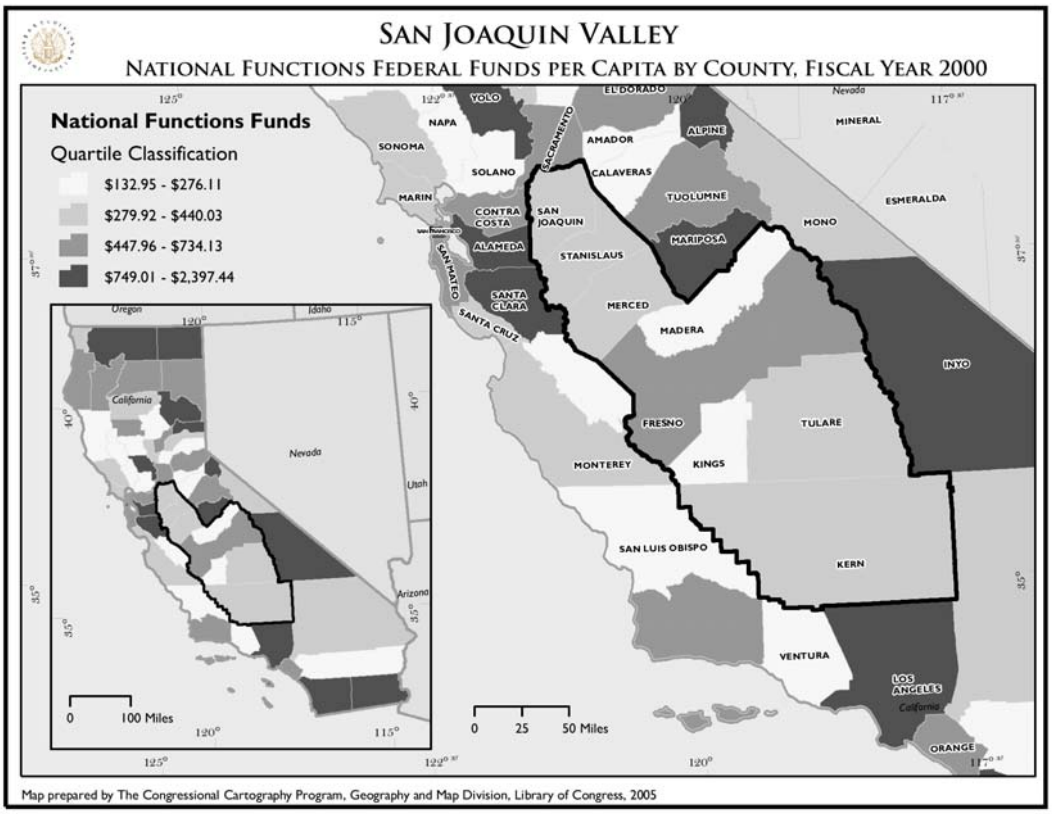
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Figure 16. Federal Assistance per Capita for Income Security by County, FY2000



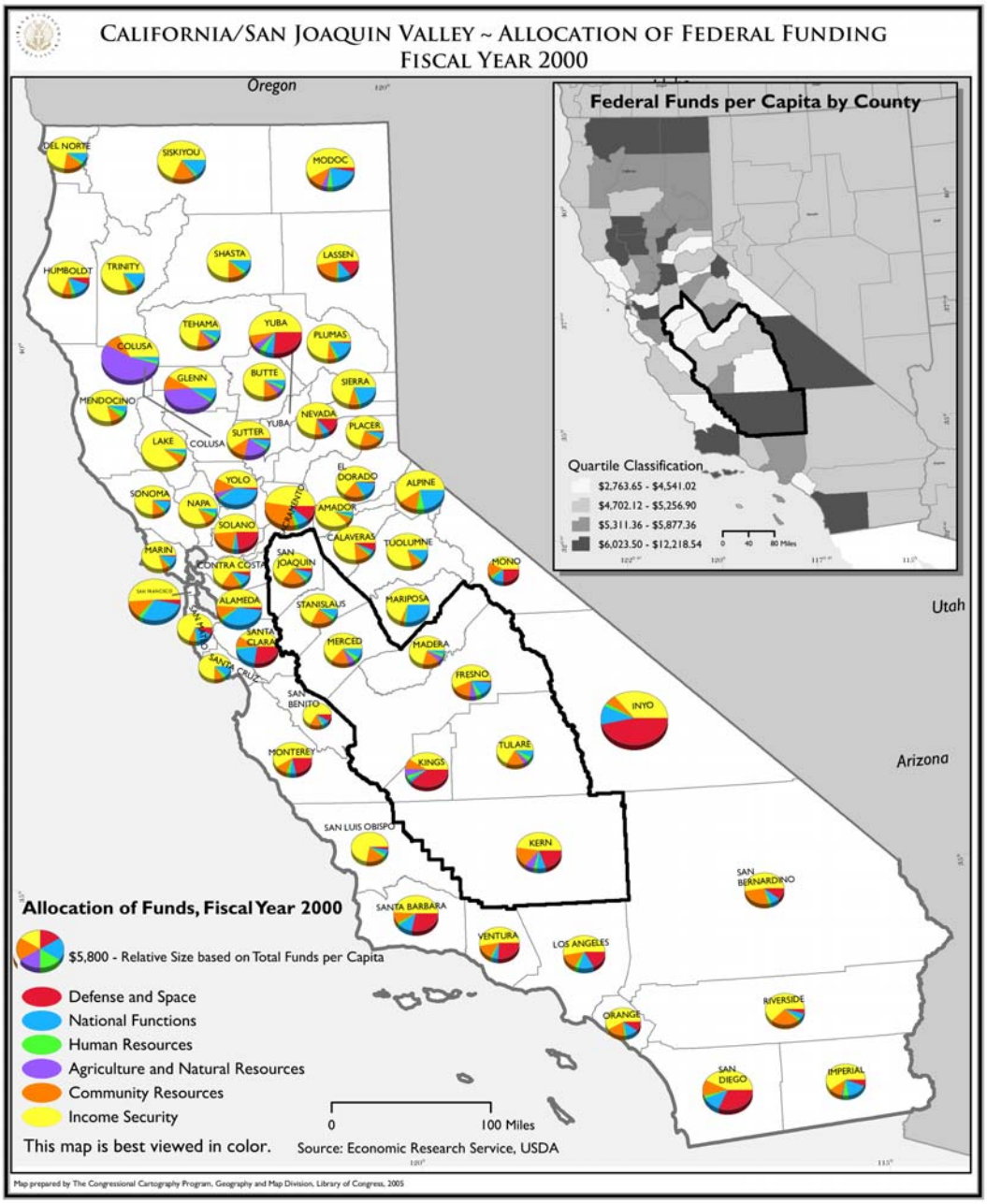
Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Figure 17. Federal Assistance per Capita for National Functions by County, FY2000



Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Figure 18. Allocation of Federal Assistance by ERS Category in California and the SJV, FY2000



Data Source: U.S. Department of Agriculture, Economic Research Service calculations of federal funds data from the U.S. Census *Consolidated Federal Funds Report, FY2000*

Chapter 4 — The Economic Structure of the San Joaquin Valley

Introduction. Identifying the forces that will influence future economic growth in the SJV is a formidable challenge to policy makers and residents of the SJV. Projections of population growth presented earlier show the SJV as one of California's fastest growing regions. Migration from the coast is a factor in this growth, yet many of these residents continue to commute to jobs in Los Angeles and the Bay Area. International migration from Asia and Latin America is also a significant factor in the population growth. Although agriculture employment as a proportion of the California economy continues to shrink, wage and salary farm production employment in the state has grown between 1990 and 2002, from 172,307 jobs in 1990 to 244,525 jobs in 2002. Agricultural service employment and agricultural processing and marketing employment have also grown between 1990 and 2000, although these categories decreased by approximately 29,000 jobs between 2000 and 2002.[81]

Agriculture remains the SJV's dominant economic sector, although hired farm labor has declined from 377,853 workers in 1992 to 243,079 workers in 2002 (35.6%).[82] Between 1997 and 2002, only Kings and Tulare counties saw small increases in number of hired farm workers. Yet, agricultural development in the SJV may produce different effects in the SJV from the changes in commodity production seen in other parts of the United States, (e.g., the Northern Great Plains and Midwest). As we discuss below, the dynamic agricultural economy of the SJV is becoming increasingly specialized, vertically integrated, and export-oriented in a globalized agro-food production system. Although these changes are occurring throughout large-scale commercial agriculture, their scale and the existence of agricultural manufacturing and processing sectors in the SJV suggest that the model of integration is perhaps at its leading edge in the SJV. Agriculture, unlike other economic sectors, is also vulnerable to changes in water supply and the conversion of prime farmland to urban uses. Change in availability or cost of these inputs could significantly alter the role of agriculture in the SJV for the future.

For all its importance to the SJV today, agricultural production will likely exist alongside an increasing diversification in the Valley's economy. While no new economic sector has developed to the point that analysts might credibly point to it as a main economic engine of the region's future, information and electronics, biomedical/health, computers and data processing, in addition to agriculture, have

---

[81] These data were compiled by USDA's Economic Research Service and are based on the 1997 North American Industry Classification System (NAICS). Most industry estimates were developed from an enhanced file of the County Business Patterns, U.S. Bureau of the Census. Farm proprietors and farm wage and salary workers are from the Bureau of Economic Analysis, U.S. Department of Commerce.
[http://www.ers.usda.gov/Data/FarmandRelatedEmployment/ViewData.asp?GeoAreaPick=STACA_California&YearPick=2002&B1=Submit]

[82] National Agricultural Statistical Service. U.S. Census of Agriculture, 1992, 1997, and 2002. It should be noted that these Census of Agriculture data did not include the number of workers brought to farms by farm labor contractors until the 2002 Census of Agriculture.

been identified as emerging economic "clusters" within the Central Valley during the 1990s.[83] In the SJV, computers and data processing services grew strongly in the early 1990s. This sector, which includes back-office data processing functions, however, is increasingly vulnerable to off-shoring to sites where labor costs are lower. The SJV also revealed a nascent biomedical "cluster" which included a growing medical instrument and supply sector.[84] In addition to profiling the economic structure of the SJV, we also discuss below the potential of an expanding biomedical and health care industry in the SJV.

Unlike agriculture, which depends in large measure on a less skilled labor pool, the more technologically advanced production "clusters" will require increased numbers of more highly skilled workers. A more technologically sophisticated agricultural industry in the SJV will likely also demand a better trained workforce in the future. Human capital development in the SJV, (i.e., life-long education and training, may become a central consideration in the diversification of the Valley economy into higher wage, higher skilled sectors). The SJV's capacity to develop and sustain high quality educational programs and worker training opportunities will be critical to creating a labor force able to take advantage of new sources of economic growth over the next two decades.

Agriculture in the SJV

Trends in the Structure of SJV Agriculture. Agriculture defines the socioeconomic structure of the SJV. The Central Valley, of which the San Joaquin is part, is the most productive agricultural region in the United States. The SJV generates half of the state's gross value of agricultural production and ranks fourth in the United States in the number of people involved in farming, forestry, and fishing. Policy issues such as labor, immigration, the environment, water supply, and land use each affect and are affected by the structure of agriculture in the Valley. While economic diversification is a goal shared by many citizens of the Valley, agriculture production and its related industries will likely remain a central pillar of the economy for the foreseeable future.[85] Agriculture in the future, however, will likely have different characteristics from the agriculture of today. Increasing technological integration, fewer farm jobs, greater economic scales of production in some sectors, and more specialization and integration are significant trends that will shape SJV agriculture in the years ahead.

---

[83] Bradshaw, Ted K. "How will the Central Valley grow?" *California Agriculture*, 54(1), January-February, 2000. Industrial "clusters" are agglomerations of interrelated regional industries that gain advantages because they are co-located and can share supply networks, research and development, and post-production specialization, e.g., marketing, shipping. See National Governors Association. *A Governor's Guide to Cluster-Based Economic Development*. Washington, D.C., July, 2002.
[http://www.nga.org/cda/files/AM02CLUSTER.pdf]

[84] Ibid.

[85] Great Valley Center. *The State of the Great Valley Central Valley of California: Assessing the regional Via Indicators: The Economy, 1999-2004*. Modesto: Great Valley Center, 2005.

The long-standing trend toward fewer, larger, and more specialized commercial farms and ranches in the U.S. (horizontal integration) is well documented. Agriculture in the SJV is arguably the model of large-scale, industrial agriculture today. Not only have these trends been observed for many years, recent data suggest they may be accelerating as pressures increase from global competitors and as new agricultural technologies continue to reinforce the substitution of capital for labor to create even greater scale efficiencies.[86] Rapid and increasing consolidation and coordination (vertical integration) in agriculture are indicators of a more fundamental restructuring occurring in the food and fiber system today. A growing share of commodity producers, mostly within animal production currently, are joining "supply chains."[87] A supply chain is a tightly organized production, processing, and marketing system formed by agribusiness firms that, in its most coordinated form, could potentially link each step of food production from proprietary genetic material to the grocery shelf.

Like previous agricultural changes, technology will play a key role in the evolution of supply chains. Technology has been a major force in driving the shift of farm activities off the farm and into the input industries. Advances in agricultural biotechnology can be expected to do the same, but with a distinct variation. Initial biotechnology development in agriculture focused on changes in bulk commodities, (e.g., herbicide resistant soybeans and pesticide resistant corn). Much current research in biotechnology is focused on the characteristics of farm products, not just how the products are produced. Proprietary products lend themselves to the structure of supply chains as the contractor firms target new bio-engineered products to particular market niches. Some farmers in some regions may choose to continue producing bulk commodities; other farmers may choose to contract with an agribusiness firm to produce a value-added bio-engineered product.

Some contract producers might find themselves with decreasing power to negotiate the terms of their contracts as the relative power of large processors to determine the conditions of production increases.[88] Although some states, (e.g., Minnesota), have adopted measures to protect contract producers, some observers believe that because producers negotiate individually with a processor, often with contract confidentiality clauses, individual producers can be at a disadvantage.[89]

---

[86] Approximately half of California's agricultural sales is in the labor-intensive fruit, vegetable, and horticultural sub-sector. These farms are heavily reliant on hired labor for most of the farm's seasonal work requirements.

[87] Drabenstott, Mark. "*Rural America in a new century." Main Street Economist*, Federal Reserve Bank of Kansas City, October, 1999.

[88] Some economists have suggested that rapid expansion of consolidation in agriculture has also exposed agribusiness firms to increased financial pressures. Such stress could leave producers who are dependent on contracts or marketing agreements with large agribusiness firms vulnerable. See Kohl, David. *"Reflections and perspectives" Ag Lender*, June 21, 2001.

[89] Etka, Steve. "*Contract agriculture: serfdom in our time.*" National Campaign for Sustainable Agriculture, *Update*, June, 2001.

What is of particular significance, if still poorly understood, are the implications for areas such as the SJV where agriculture plays such a central role in the region's economy. Historically, agricultural production was relatively widely distributed across the landscape. Supply chains appear to be redrawing the landscape of dispersed agricultural production. Poultry production and swine production were once widely dispersed across the country. Today, broiler production, which is almost exclusively done under producer contracts, is found mostly in the South and Southeastern U.S. and upper Midwest. Poultry processing plants are even more concentrated within those regions. Similarly, beef production, with large feed lots and nearby meat packing plants, suggests a very different agricultural geography, one with potentially significant social and environmental effects in regions where such production occurs. Given the SJV's strong production in dairy, fruits, and vegetables, the evolution of supply chain production in those sectors is likely to hold significant implications for agriculture in the Valley.

Agriculture and SJV Communities. Some research has suggested that farm scale and other management characteristics are associated with certain community characteristics. This research has been controversial since Walter Goldschmidt's pioneering 1944 research on two San Joaquin farming communities conducted for the USDA's Bureau of Agricultural Economics.[90] A substantial body of evidence has shown that communities characterized by large-scale, especially industrial, farm structures are often associated with adverse community socioeconomic conditions, e.g., lower community standards of living, less economic diversity, fewer community services, less vibrant retail trade, etc., than communities with other types of farming enterprises.[91] The direction of that statistical association, however, remains unclear as does the strength of the relationship and, even more important, the processes that underlie it.

Research conducted as part of the Office of Technology Assessment's (OTA) 1986 report, *Technology, Public Policy, and the Changing Structure of American Agriculture*, supported the relationship reported by Goldschmidt between industrial farming and community quality of life in its analysis of Florida and several Western states.[92] Farms dominated by manager-worker relations and dependent on large, mostly unskilled labor forces can be associated with adverse socioeconomic effects.[93] Because a significant portion of SJV agriculture does exhibit some of the characteristics of industrialized agricultural, the relation between agriculture and

---

[90] Walter F. Goldschmidt. *As You Sow*: *Three Studies in the Social Consequences of Agribusiness*. Montclair, NJ: Allanheld, Osmun and Co., 1978.

[91] Counties with the most industrialized agriculture are found in California, Arizona, Texas, and Florida. Of these, California and Texas are among the top 10 states with the most agricultural workers.

[92] MacCannell, Dean and Edward Dolber-Smith. "*Report on the Structure of Agriculture and Impacts of New Technologies on Rural Communities in Arizona, California, Florida, and Texas.* Report prepared for the U.S. Office of Technology Assessment, 1985.

[93] California has more farm workers than any other state. The Central Valley of California, the richest agricultural area in the world, however, has an unemployment rate three times the national average (New York Times, June 18, 2001, A1, A14).

community demonstrated by Goldschmidt is arguably a factor in the current socioeconomic structure of the SJV. However, large-scale, owner-operated farms, which also characterize farming in the San Joaquin, generally show positive effects. As these observations might suggest, any association between farm organization and various community characteristics appears to be mediated by the size and economic diversity of the community, the region, the kinds of agricultural commodities produced, and a rural area's proximity to urban-suburban areas.

The social organization of the local and regional non-farm economy also exerts important effects on the surrounding area suggesting that newly created opportunities in the non-farm economy may have significant impact on the farm economy and the rural economy more generally. As supply chains and other forms of vertical integration and coordination come to characterize various production sectors, the kinds and degree of impact in the SJV may vary considerably depending on the broader characteristics of the regional economy and on the existence of local capacities for generating innovative alternatives or complements to these forms of production.

Agricultural Land Conversion. Given the population growth projected for the SJV, pressures to convert productive agricultural acreage to housing and other urban needs will become increasingly important issues for planners and economic development officials.[94] The conflict between agriculture and the need to manage the tremendous population growth that the SJV will experience over the next 20 years indicate significant planning challenges to the region.[95] From 1990-2002, 283,277 acres of irrigated farmland in the Central Valley were converted, mostly to urban uses. The SJV experienced the greatest amount of farmland loss.[96] An analysis of the Central Valley by the American Farmland Trust (AFT) estimated that low-density urban sprawl would consume over 1 million acres of farmland by 2040, approximately 60% of which would be prime farmland and farmland of state importance.[97] In addition, growth pressures on agricultural land within a one-third mile zone around urban areas would involve another 2.5 million acres. While the AFT report recognized that a "no-growth" future was unrealistic, the loss of prime farmland, reduced agricultural production, and related income loss over the next 35 years could be attenuated by more compact growth scenarios as opposed to low-density sprawl. The AFT report estimated that a compact pattern of urban growth could also result in saving Central Valley agriculture about $72 billion between 1992-2040. **Figure 19** is a map showing the land use in the SJV.

---

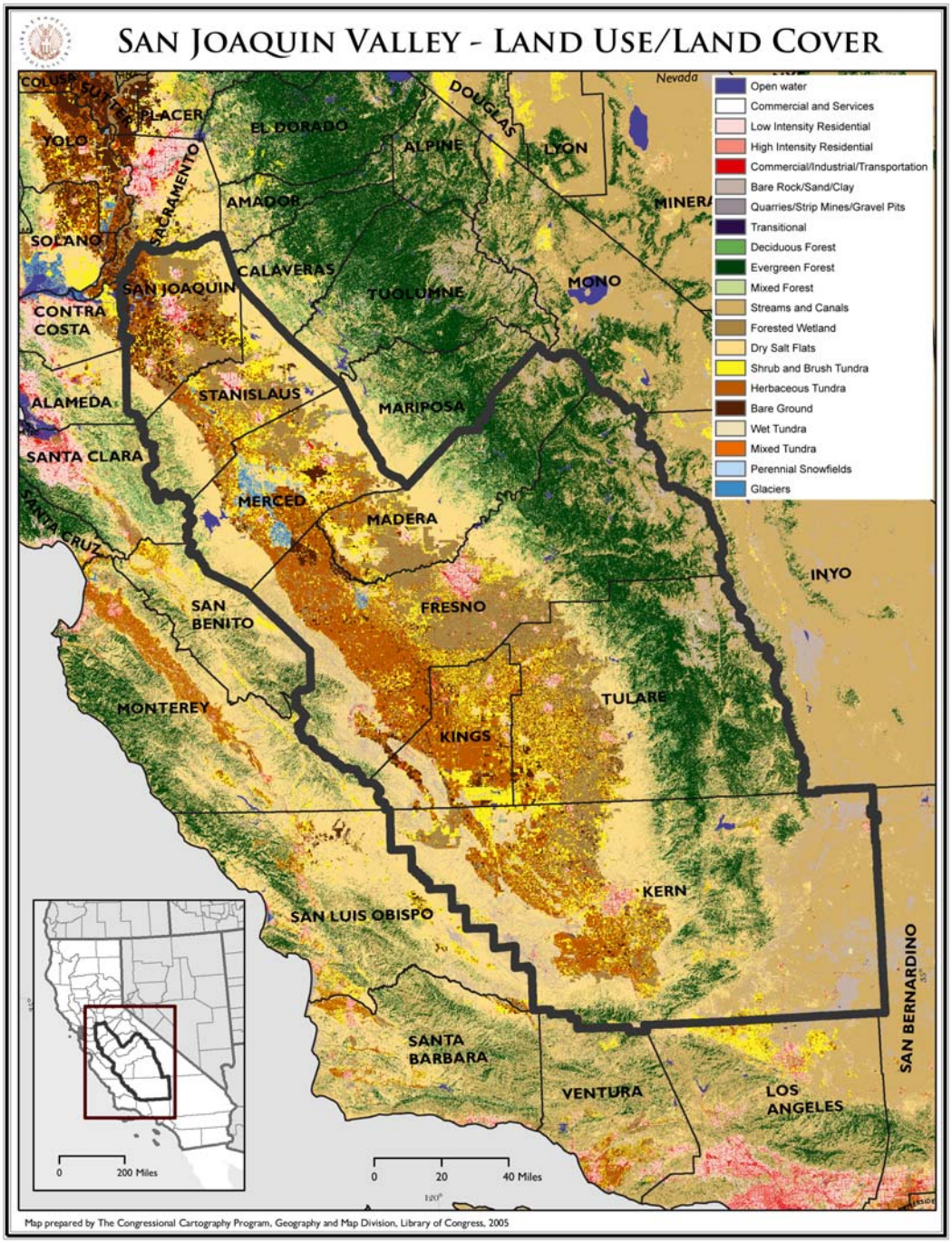
[94] Great Valley Center. *Can City and Farm Coexist? The Agricultural Buffer Experience in Californi*a. January, 2002.

[95] Great Valley Center. *Agriculture and New Housin*g. January, 2001.

[96] Great Valley Center. *The State of the Great Valley Central Valley of California: Assessing the regional Via Indicators: The Economy, 1999-2004*. Modesto: Great Valley Center, January, 2005, p. 33.

[97] American Farmland Trust. *Alternatives for Future Urban Growth in California's Central Valley: The Bottom Line for Agriculture and Taxpayer*s. Washington, D.C. October, 1995.

Figure 19. SJV Land Use/Land Cover



Data Source: U.S. Geological Survey

SJV Farm Characteristics. **Table 76** shows SJV county farms by size. The Valley as a whole has nearly 10 million acres of farmland and over 28,000 farms. Fresno and Tulare Counties have the largest number of farms while Kern County has the largest acreage in farmland. Kern and Fresno Counties also have the largest number of farms of 1,000 acres or more, although the average size farm in the Valley is 436 acres. This is approximately the average size farm in the United States, but somewhat larger than the average size California farm. While Mariposa and

Tuolumne Counties also have large average sized farms, they have significantly fewer farms and less acreage in farmland than the eight counties of the SJV.

Value of Products. California produces a significant proportion of higher-valued agricultural products, (e.g., fruits, vegetables, tree crops, dairy). The average market value of agricultural product sales per farm in 2002 in the United States and California was $94,245 and $323,205 respectively according to data from the most recent Census of Agriculture (**Table 77**). For the SJV, the average agricultural market value per farm of the eight counties was $494,892, with over 9,000 farms producing sales of $100,000 or more. The total market value of crops in the SJV was $8.1 billion and the total market value of livestock was $4.4 billion. Over 42% of the market value of crops and 67% of the market value of livestock in California come from the SJV. As **Figure 20** shows, the SJV is in the top quartile of average sales per farm for the state.

Table 78 provides more detailed data from California's County Agricultural Commissioners' Reports on the gross value of the SJV's leading commodities. Again, the data in **Table 78** show that Mariposa and Tuolumne counties stand in marked contrast to the agricultural character of the SJV with very little agricultural production in comparison. **Table 79** shows the 5 leading counties by commodity rank and the percentage of California's total gross value of agricultural production for that commodity. With the exception of nursery products, flowers and foliage, and strawberries, at least one SJV county is within the top 5 among California's 10 highest value commodities.

Irrigation. Much of SJV agricultural production is based on irrigation. Of the total 28,357 farms in the SJV, over 80% (23,482) have some portion of their farm under irrigation (**Table 80**). Of the 1.44 million acres of total farm land on which some portion is irrigated, 76% of that acreage is irrigated. Over 10% of the farms that irrigate are 500 to 2,000 acres or more. Fresno and Tulare counties have the largest amounts of irrigated acreage, 1.1 million and 652,000 respectively. Mariposa and Tuolumne counties have only about 5,200 acres in irrigated land between them, while the SJV counties have a total of 4.73 million acres of irrigated farmland. The eight SJV counties represent about 54% of California's total irrigated acreage (See **Figure 21** and **Figure 22**). Of that amount, 72% is located on farms of 500-2,000 acres or more.

Direct Subsidies to Agriculture. Another characteristic of U.S. agriculture is federal subsidies to certain crops. Grains, cotton, rice, soybeans, peanuts, and barley are subsidized by direct federal payments to the farmers who grow these crops. The SJV, with its high production in unsupported fruits and vegetables, does not receive commodity support payments per farm to the same extent as other parts of the United States where production of supported crops is much higher. In 2000, direct government payments to California amounted to $667 million out of total federal direct agricultural payments of $22.9 billion, about 3% of all direct federal payments

for agriculture.[98] In contrast, Iowa received about 10% of U.S. payments and Texas received about 7%.[99]

The federal farm payments received in SJV are mostly for cotton, rice, wheat and feed grains. **Table 81** provides 2002 data on federal farm payments showing that, while the number of farms growing supported crops is small relative to the total number of farms in the SJV, the average subsidy per farm is substantially higher than for the United States as a whole (See **Figure 23**) Approximately 33% of U.S. farms and 9% of California farms receive federal subsidies. Led by Kings, Fresno, and Kern Counties, the average federal agricultural support payment to farms receiving payments in the SJV was nearly $29,000 compared to a national average of $9,251 and a California average of $23,340. Mariposa County received about one-fourth the average of federal farm payments ($7,333) that SJV farms received, while Tuolumne County's farms received much less on average ($3,727). Total federal payments to the SJV in 2002 were $85.3 million, slightly more than 1% of the total for the United States, but 51% of the total for California.

Agricultural Labor. Farmworkers are a marginalized population, often isolated from the communities in which they live and work. One consequence of this isolation is the lack of reliable information on farmworker demographics and economic conditions. Although there are no current reliable statistics for the total number of farmworkers, the National Agricultural Workers Survey, conducted by the U.S. Department of Labor, estimated that in 1995, there were approximately 1.6 million agricultural workers in the United States.

Hired Farm Labor. Hired labor is an important characteristic in the structure of large-scale agricultural production. While smaller-scale family-run operations may also regularly hire farm labor, the scale and intensity of agricultural production in the SJV make hired farm labor a dominant feature of production, especially on the largest farms. There were 243,079 hired farm workers in the SJV in 2002 accounting for about 8% of the hired farm workers in the United States and 45% of California's hired farmworkers (**Table 82**). Of the total 28,357 farms in the SJV, 50% rely to some extent on hired farm labor (14,135 farms).[100] Of those farms employing hired labor, one-third have 10 or more hired workers with an average of 45 hired workers on those farms employing 10 or more workers. **Table 82** shows that farms with 5-9 hired workers employed an average of 6.5 in 2002. Mariposa and Tuolumne also had a few farms (17) with 10 or more hired workers, averaging between 25-30 workers per farm.

Hired farm labor in the SJV had a $1.68 billion payroll in 2002. This amounts to an average worker wage of approximately $6,900. This wage may or may not represent full-time farm labor over the course of a year. This average wage, however,

---

[98] Johnston, Warren E. and Alex F. McCalla. *Whither California Agriculture: Up, Down, or Out? Some Thoughts about the Future*. Giannini Foundation Special Report 04-1, August 2004.

[99] Ibid., p. 62.

[100] The category of hired farm labor includes paid family members of farm owners.

reflects some variation among individual counties, suggesting that labor on different farms is paid differently and/or that the wages reflect differing total days worked. The average county wages for hired farm labor ranged from a high of $9,492 in Kern County to a low of $5,058 in Fresno county.

Two additional tables (**Table 83** and **Table 84**) provide a more detailed look at the labor structure of SJV farms. Generally, hired farm workers are concentrated on larger farms that are more dependent on hired labor, (i.e., those with 10 or more hired workers). **Table 83** shows that of the total 28,357 farms in the SJV, 37.7% (10,677) employed hired labor for 150 days or fewer per year in 2002. Fresno and Tulare counties have the highest number of hired farm workers working 150 days or fewer. In Fresno County, nearly 90% of hired farm workers working 150 days or fewer did so on farms with 10 or more hired workers. Fresno County farms with 10 or more hired workers working 150 days or fewer had an average of about 38 workers per farm. In the other SJV counties, most of the hired workers working fewer than 150 days per year also worked on farms with 10 or more hired workers. For the SJV, 86% of the workers working 150 days or fewer worked on farms with 10 or more hired workers. The average number of hired workers in the SJV working on farms with more than 10 hired workers was 42 workers. For the United States as a whole, 54% of hired farm workers working 150 days or fewer worked on farms with 10 or more hired workers. In California, that figure was 83% in 2002 with an average of 41 workers per farm. Mariposa and Tuolumne counties had very small numbers of hired farm labor compared to the SJV.

Table 84 provides data on farms where labor is retained over longer periods. While most farms in the SJV employing hired workers retain these workers for 150 days or fewer, about 30% of SJV farms (8,665) employ hired farm workers for 150 days or more. In 2002, there were 77,683 hired workers who worked 150 days or more. Fresno and Tulare counties also had the most hired workers working 150 days or more. As was the case with workers who worked 150 days or fewer, most workers working 150 days or more worked on farms with more than 10 workers. The average number of workers per farm, however, was somewhat less than for farms with hired labor working 150 days or fewer (34 versus 42 workers per farm respectively). For those farms that hire few workers on average, those with fewer than nine workers, the average was approximately four workers per farm. The data show that the majority of hired farm labor in the SJV works on a relatively concentrated group of larger, more industrially managed operations within each of the SJV counties.

Migrant Farm Labor. A particular class of hired farm labor is migrant labor. In a case study of farmworkers in Kern County, the Housing Assistance Council noted that migrant and resident farmworkers constitute distinct populations, each with its own special needs.[101] Information on U.S. farm migrant labor, however, was collected for the first time in the 2002 Census of Agriculture. To gauge the extent to which SJV farms were reliant on migrant labor, farm operators were asked whether any hired or contract workers were migrant workers, defined as a farm worker whose employment required travel that prevented the migrant worker from

---

[101] Housing Assistance Council. *Taking Stock: Rural People, Poverty, and Housing at the Turn of the 21st Century.* Washington, D.C. 2002.

returning to his/her permanent place of residence the same day. **Table 85** provides 2002 data on farm migrant labor. Of the 243,079 hired farm workers, 3,994 were officially counted as migrant workers. This official tally categorizes 1.6% of all SJV hired farm labor as migrant labor. An additional 820 migrant farmworkers worked on SJV farms as contract labor. Based on these 2002 Census of Agriculture data, 45% of California's migrant farm labor force and 54% of migrant contract labor work on farms in the SJV. These data further show that approximately 10% of U.S. migrant farm labor and 12% of U.S. migrant contract labor work on farming operations in the SJV.

A 1997 U.S. Department of Labor report based on 1994-1995 data from the National Agricultural Workers Survey, showed that 94% of all U.S. foreign born farm workers were Mexican.[102] Nearly 56% of the farmworkers surveyed were migrants. While migrant workers are a sub-category of farmworkers, the conclusions of the Department of Labor report are significant for the SJV:

> Over time the farmworker population has become increasingly male (currently 80%).
> Over time the population has become increasingly foreign born (currently70%).
> Farmworkers are generally young (66% are younger than 35) and almost 20% are in their first year of U.S. farm work.
> Most adult foreign farmworkers are married and have children.
> Most foreign-born farm workers with families live and work separately from their spouses and children.
> Most foreign farmworkers live with non-relatives.
> Most (60%) farmworkers are poor; and the proportion seems to be increasing over time.
> Despite their poverty, few use social services, although Food Stamps, Medicaid, and to a lesser extent the WIC programs were used.
> The proportion of unauthorized farm workers rose quickly as citizens and the newly legalized population left farm work. In the 1994-1995 period, 37% of farmworkers were unauthorized, up from 7% in 1989.

---

[102] U.S. Department of Labor. 1997. *A Profile of U.S. Farm Workers: Demographics, Household Composition, Income, and Use of Services*. Report prepared for the Commission on Immigration Reform. Washington, D.C.

Table 76. Farms by Size, 2002

SJV Counties	Farms (Number)	Land in farms (Acres)	Average size of farm (Acres)	Farms by size					
				1 to 9 acres	10 to 49 acres	50 to 179 acres	180 to 499 acres	500 to 999 acres	1,000 acres or more
Fresno	6,281	1,928,865	307	965	2,682	1,360	552	359	363
Kern	2,147	2,731,341	1,272	345	437	443	346	220	356
Kings	1,154	645,598	559	198	364	237	139	100	116
Madera	1,780	682,486	383	208	596	460	279	107	130
Merced	2,964	1,006,127	339	333	1,150	757	370	160	194
San Joaquin	4,026	812,629	202	876	1,644	781	396	153	176
Stanislaus	4,267	789,853	185	949	1,883	777	399	125	134
Tulare	5,738	1,393,456	243	1,218	2,295	1,178	566	243	238
Total SJV Counties	**28,357**	**9,990,355**	**436**	**5,092**	**11,051**	**5,993**	**3,047**	**1,467**	**1,707**
Adjacent Counties									
Mariposa	284	219,133	772	22	86	73	44	23	36
Tuolumne	358	149,767	418	89	117	63	35	20	34
California and the United States									
California	79,631	27,589,027	346	21,827	27,307	14,356	7,741	3,604	4,796
United States	2,128,982	938,279,056	441	179,346	563,772	658,705	388,617	161,552	176,990

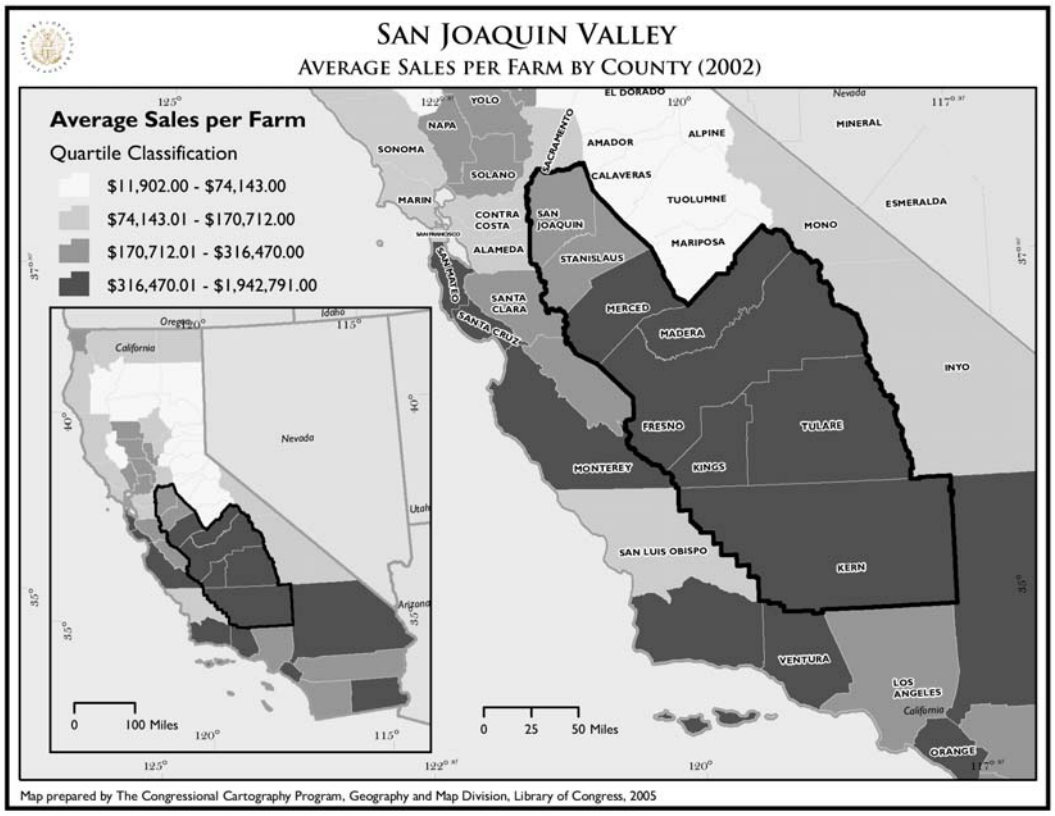
Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Table 77. Market Value of Agricultural Product Sales, 2002

SJV Counties	Market value of agricultural products sold ($1,000)	Average Market Value	Market value of Crops ($1,000)	Market value of Livestock ($1,000)	Number of Farms by value of sales						
					Less than $2,500	$2,500 to $4,999	$5,000 to $9,999	$10,000 to $24,999	$25,000 to $49,999	$50,000 to $99,999	$100,000 or more
Fresno	2,759,421	439,328	2,150,938	608,483	1,063	280	424	786	749	922	2,057
Kern	2,058,705	958,875	1,783,418	275,288	617	122	101	121	121	138	927
Kings	793,061	687,228	394,674	398,387	250	74	71	108	91	69	491
Madera	710,433	399,120	505,071	205,363	400	100	91	150	178	211	650
Merced	1,409,254	475,457	597,577	811,677	560	131	193	365	326	322	1,067
San Joaquin	1,222,454	303,640	907,837	314,617	942	227	322	461	443	398	1,233
Stanislaus	1,228,607	287,932	567,965	660,643	1,075	271	395	624	457	394	1,051
Tulare	2,338,577	407,560	1,194,237	1,144,340	1,068	312	405	683	653	684	1,933
Total SJV Counties	**12,520,512**	**3,959,140**	**8,101,717**	**4,418,798**	**5,975**	**1,517**	**2,002**	**3,298**	**3,018**	**3,138**	**9,409**
Adjacent Counties											
Mariposa	6,285	22,130	470	5,815	144	28	38	40	11	9	14
Tuolumne	23,569	65,836	1,134	22,435	198	42	47	19	28	10	14
California and the United States											
United States	200,646,355	94,245	95,151,954	105,494,401	826,558	213,326	223,168	256,157	157,906	140,479	311,388
California	25,737,173	323,205	19,152,722	6,584,451	23,362	6,038	7,262	9,455	7,131	6,798	19,585

Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Figure 20. Average Sales per Farm by County (2000)



Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Table 78. Leading Commodities for Gross Value of Agricultural Production by SJV and Adjacent Counties, 2003

Fresno	**$1,000**
Grapes	$400,842
Tomatoes	$384,290
Cotton	$341,666
Cattle and Calves	$263,510
Poultry	$246,520
Milk	$221,199
Oranges	$215,349
Almonds	$201,596
Onions	$164,766
Peaches	$158,470

Kern	**$1,000**
Grapes	$402,80
Almonds and By-Products	$280,50
Citrus	$278,01
Carrots	$269,13
Milk	$230,30
Cotton and Cottonseed	$176,68
Alfalfa Hay	$115,69
Nursery Crops	$100,70
Potatoes	$83,241
Cattle and Calves	$67,868

Kings	**$1,000**
Milk, All	$325,412
Cotton, All	$200,071
Cattle and Calves	$103,683
Alfalfa Hay	$45,807
Pistachios	$37,744
Turkeys	$30,117
Tomatoes, Processing	$26,495
Corn Silage	$26,460
Wheat	$22,525
Peaches, All	$22,121

Madera	**$1,000**
Almonds	$154,98
Milk, Market	$126,95
Grapes, Wine	$87,991
Cattle, Replacement	$47,025
Grapes, Table	$34,158
Pistachios	$31,891
Alfalfa Hay	$29,409
Cattle and Calves	$29,185
Grapes, Raisin	$26,111
Poultry	$22,125

Mariposa	**$1,000**
Cattle and Calves	$9,736
Pasture, Range	$7,058
Livestock and Poultry	$1,236
Poultry, All	$974
Forest Products	$644
Fruit and Nut Crops	$451
Honey	$213
Sheep and Lambs	$189
Nursery Stock	$160
Livestock, Misc.	$119

Merced	**$1,000**
Milk, Market	$552,61
Chicken	$230,06
Almonds	$211,86
Cattle and Calves	$168,66
Potatoes, Sweet	$89,186
Tomatoes, Fresh Market	$81,298
Alfalfa Hay	$68,986
Cotton, Lint	$68,218
Eggs, Chicken	$48,484
Turkeys	$48,436

San Joaquin	**$1,000**		**Stanislaus**	**$1,000**
Milk, All	$256,633		Milk, Market	$424,98
Grapes, All	$175,156		Almonds	$239,90
Almond Meats	$125,977		Chickens	$104,55
Tomatoes, All	$118,380		Nursery, Fruit, Vine, Nuts	$71,282
Cherries, All	$109,869		English Walnuts	$59,046
English Walnuts	$96,386		Cattle, Fed Heifers and	$42,235
Nursery, Woody	$59,585		Peaches, All	$39,477
Apples	$53,550		Corn Silage	$38,312
Eggs, Chicken	$51,558		Alfalfa Hay	$36,410
All hay	$50,467		Chicks	$31,672
Tulare	**$1,000**		**Tuolumne**	**$1,000**
Milk	$1,067,797		Livestock	$11,958
Oranges, Navel and	$442,504		Cattle and Calves	$5,594
Grapes	$378,511		Pasture, Range	$2,030
Cattle and Calves	$372,863		Forest Products, Firewood	$1,041
Plums	$85,500		Apiary Products	$367
Alfalfa Hay and Silage	$84,019		Pasture, Irrigated	$209
Peaches, Cling and	$70,092		Fruit and Nut Crops	$170
Walnuts	$68,970		Other Hay	$1,133
Nectarines	$66,474		Sheep and Lambs	$92
Corn Grain and Silage	$66,008		Livestock Products	$85

Source: Summary of County Agricultural Commissioners' Reports: Gross Values by Commodity Groups — California 2002-2003. September, 2004.

Table 79. SJV Commodity Rank and Leading Counties by Gross Value of Agricultural Production, 2003

Commodity	Five Leading Counties by Rank and Percentage of State Total						
	State Rank	Value $000	1	2	3	4	5
Milk and Cream	1	$4,112,479	**Tulare 26.0%**	**Merced 13.5%**	**Stanislaus 10.4%**	San Bernardino 9.2%	**Kings 7.9%**
Grapes	2	$3,022,439	**Kern 13.3%**	**Fresno 13.3%**	Napa 12.7%	**Tulare 12.5%**	Sonoma 10.5%
Nursery Products	3	$2,654,394	San Diego 19.1%	Orange 8.0%	Riverside 7.7%	Monterey 7.5%	Los Angeles 6.6%
Cattle and Calves	4	$1,996,552	**Tulare 18.7%**	**Fresno 13.2%**	Imperial 11.9%	**Merced 8.4%**	**Kings 5.2%**
Lettuce	5	$1,634,171	Monterey 63.2%	**Fresno 10.3**%	Imperial 8.9%	Santa Barbara 5.8%	San Benito 4.3%
Almonds	6	$1,501,592	**Kern 17.7**	**Stanislaus 15.9%**	**Merced 14.1%**	**Fresno 12.6%**	**Madera 10.3%**
Strawberries	7	$973,233	Ventura 30.9%	Monterey 26.0%	Santa Barbara 22.7%	Santa Cruz 12.5%	Orange 6.0%
Oranges	8	$949,358	**Tulare 46.6%**	**Kern 22.9%**	**Fresno 22.7%**	Ventura 2.2%	San Bernardino 1.66%
Alfalfa Hay	9	$782,186	**Kern 14.8**%	Imperial 12.4%	**Tulare 10.2%**	**Merced 8.8%**	**Fresno 8.3%**
Flowers and Foliage	10	$778,087	San Diego 53.6%	Santa Barbara 11.6%	San Luis Obispo 5.8%	Ventura 5.7%	Monterey 5.4%

Commodity	Five Leading Counties by Rank and Percentage of State Total						
	State Rank	Value $000	1	2	3	4	5
Cotton Lint	11	$774,208	**Fresno 37.9%**	**Kings 21.9%**	**Kern 18.8%**	**Merced 8.8%**	**Tulare 6.7%**
Rice	12	$638,046	Colusa 25.2%	Sutter 20.0%	Butte 17.6%	Glenn 16.7%	Yuba 6.8%
Broccoli	13	$592,357	Monterey 47.3%	Santa Barbara 19.8%	**Fresno 13.1%**	San Luis Obispo 8.1%	Imperial 5.3%
Tomatoes, Processing	14	$571,113	**Fresno 47.6%**	Yolo 10.7%	**San Joaquin 10.1%**	Colusa 5.7%	**Merced 5.2%**
Salad Greens, Misc.	15	$440,817	Monterey 99.3%	Imperial 0.7%	—	—	—
English Walnuts	16	$433,800	**San Joaquin 22.2%**	**Tulare 15.9%**	**Stanislaus 13.6%**	Butte 11.0%	Tehama 6.5%
Peaches	17	$416,165	**Fresno 38.1%**	**Tulare 16.8%**	**Stanislaus 9.5%**	Sutter 7.8%	**Kings 5.3%**
Avocados	18	$402,160	San Diego 36.3%	Ventura 25.1%	Riverside 14.9%	Santa Barbara 13.8%	Orange 4.9%
Chickens	19	$379,399	**Merced 60.8%**	**Stanislaus 35.9%**	San Bernardino 2.0%	**San Joaquin 1.1%**	San Diego 0.2%
Silage	20	$325,852	**Tulare 26.7%**	**Merced 18.0%**	**Stanislaus 14.3%**	**Kern 10.0%**	**Kings 9.8%**
Onions	21	$306,095	**Fresno 53.8%**	Imperial 18.9%	Los Angeles 5.9%	**Kern 5.5%**	**San Joaquin 4.8%**

Commodity	Five Leading Counties by Rank and Percentage of State Total						
	State Rank	Value $000	1	2	3	4	5
Tomatoes, Fresh Market	22	$305,546	**Fresno 36.3%**	**Merced 26.6%**	**San Joaquin 19.9%**	San Diego 8.7%	**Stanislaus 7.1%**
Eggs, Chicken	23	$302,524	Riverside 24.5%	**San Joaquin 17.0%**	San Diego 17.0%	**Merced 16.9%**	San Bernardino 12.9%
Lemons	24	$278,081	Ventura 53.4%	**Kern 9.6%**	Riverside 9.4%	**Tulare 8.3%**	San Diego 6.2%
Celery	25	$270,041	Ventura 42.0%	Monterey 39.1%	Santa Barbara 12.5%	San Luis Obispo 3.2%	San Benito 1.8%

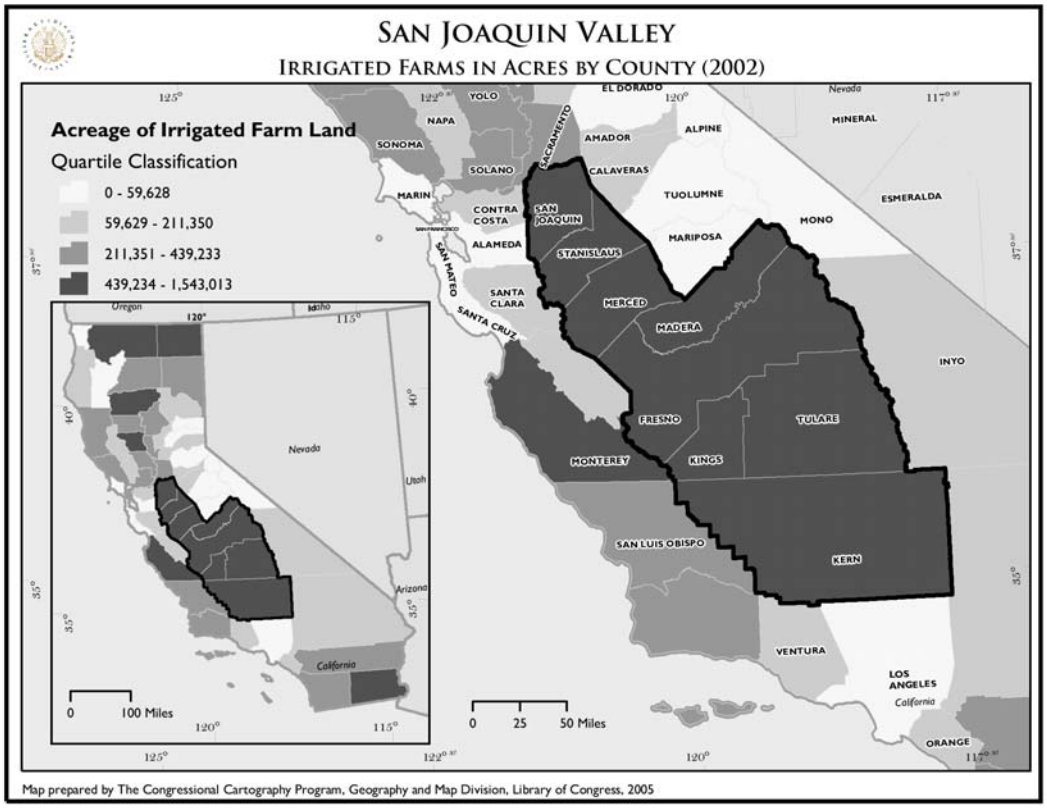
Source: Summary of County Agricultural Commissioners' Reports: Gross Values by Commodity Groups — California 2002-2003. September, 2004.

Table 80. SJV Irrigated Land, 2002

SJV Counties	Irrigated land (farms)	Total land in irrigated farms (acres)	Irrigated land (acres)	Irrigated acres by size of farm							
				1 to 69 acres		70 to 179 acres		180 to 499 acres		500 to 2,000 acres or more	
				Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres
Fresno	5,405	1,442,088	1,098,941	3,455	72,535	830	78,961	489	125,712	631	821,733
Kern	1,408	1,543,013	811,672	470	8,003	271	28,389	245	65,700	422	709,580
Kings	909	482,753	407,031	430	7,666	156	15,085	132	34,383	191	349,897
Madera	1,260	503,402	317,241	618	15,632	266	25,184	209	54,200	167	222,225
Merced	2,569	803,965	518,538	1,459	32,995	477	45,873	325	79,216	308	360,454
San Joaquin	3,428	749,595	520,172	2,260	39,743	479	45,540	377	94,424	312	340,465
Stanislaus	3,764	702,692	401,439	2,672	46,135	484	45,480	376	87,818	232	222,006
Tulare	4,739	1,036,279	652,385	3,108	59,090	727	69,538	511	134,554	393	389,203
Total SJV Counties	**23,482**	**7,263,787**	**4,727,419**	**14,472**	**281,799**	**3,690**	**354,050**	**2,664**	**676,007**	**2,656**	**3,415,563**
Adjacent Counties											
Mariposa	60	42,196	1,541	30	123	15	440	2	0	13	531
Tuolumne	142	59,628	3,738	86	502	22	567	13	125	21	2,495
California and the United States											
California	55,596	17,587,694	8,709,353	36,220	517,570	7,620	633,966	5,833	1,295,449	5,923	6,262,368
United States	299,583	243,442,396	55,311,236	146,894	1,594,890	41,218	2,278,774	39,367	5,802,407	72,104	45,635,165

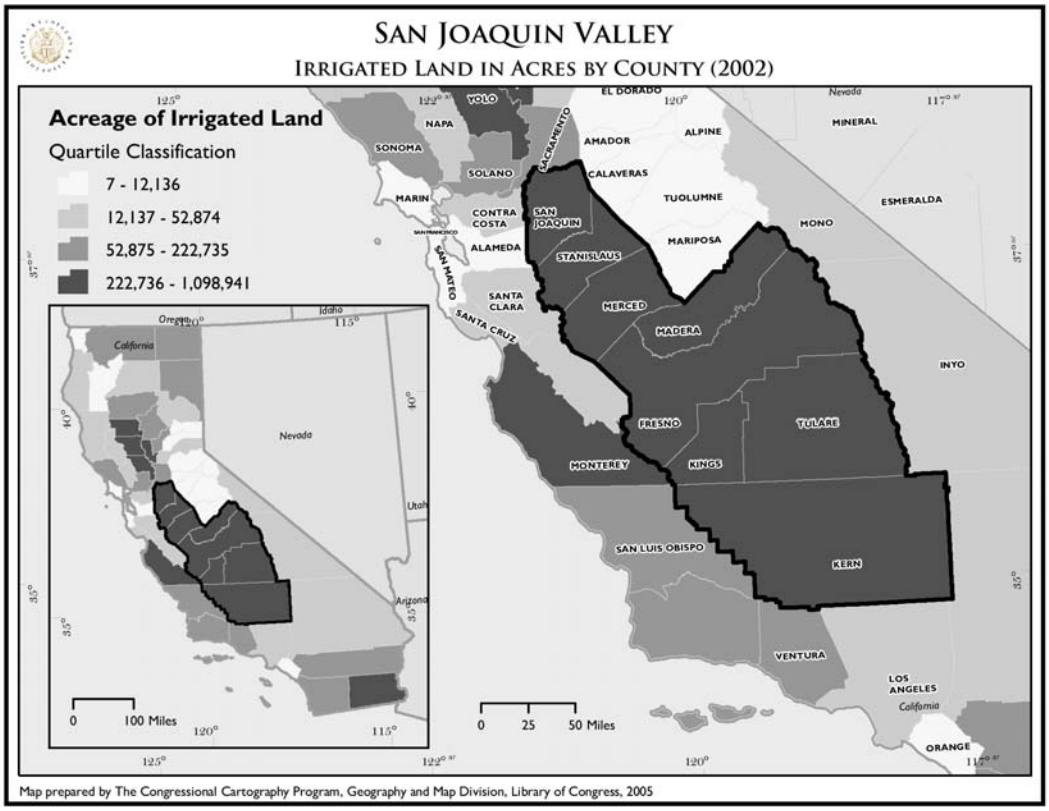
Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Figure 21. Irrigated Farm Acreage by County (2000)



Data Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Figure 22. Irrigated Land in Acres by County (2002)



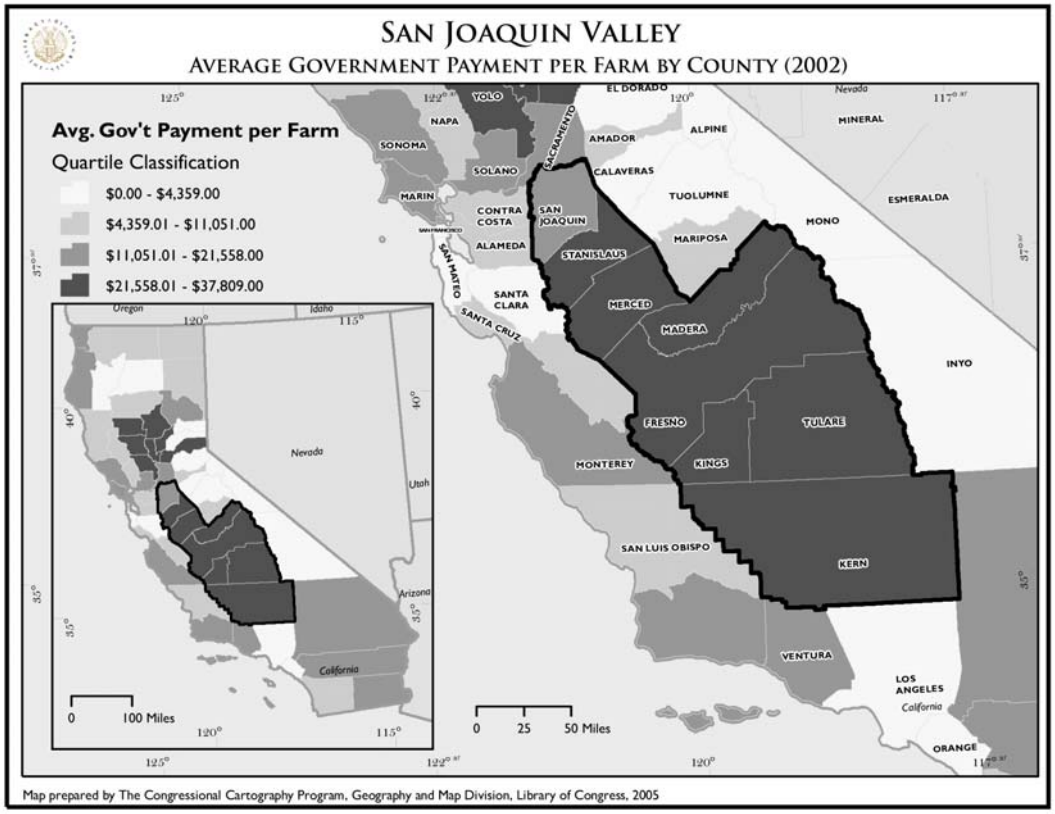
Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Table 81. SJV Federal Farm Payments, 2002

SJV Counties	Number of Farms	Number of Farms Receiving Payments in 2002	Government payments ($1,000)	Average Payment per farm
Total SJV Counties	28,357	2,958	$85,346.0	$28,852
Fresno	6,281	534	$18,898.0	$35,390
Kern	2,147	362	$13,248.0	$36,597
Kings	1,154	290	$10,038.0	$34,614
Madera	1,780	127	$3,160.0	$24,882
Merced	2,964	454	$11,479.0	$25,284
San Joaquin	4,026	333	$7,118.0	$21,375
Stanislaus	4,267	331	$8,589.0	$25,949
Tulare	5,738	527	$12,816.0	$24,319
Adjacent Counties				
Mariposa	284	9	$66.0	$7,333
Tuolumne	358	11	$41.0	$3,727
California and the United States				
California	79,631	7,228	$168,698	$23,340
United States	2,128,982	707,596	$6,545,678	$9,251

Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Figure 23. Average Federal Farm Payments per Farm by County (2002)



Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Table 82. SJV Hired Farm Labor, 2002

SJV Counties	# of Farms with Hired farm labor	# of Hired farm laborer	Payroll of Hired farm labor ($1,000)	Farms with 1 worker		Farms with 2 workers		Farms with 3 or 4 workers		Farms with 5 to 9 workers		Farms with 10 workers or more	
				Farms	Workers	Farms	Workers	Farms	Workers	Farms	Workers	Farms	Workers
Fresno	3,413	69,991	354,051	443	443	378	756	437	1,533	693	4,428	1,462	62,831
Kern	1,183	31,521	299,204	199	199	248	496	231	845	167	1,049	338	28,932
Kings	573	10,269	86,254	44	44	74	148	99	335	128	903	228	8,839
Madera	925	19,131	97,123	179	179	92	184	106	354	156	1,078	392	17,336
Merced	1,495	19,727	178,581	244	244	224	448	270	916	376	2,589	381	15,530
San Joaquin	1,761	30,957	209,676	252	252	289	578	292	1,009	349	2,302	579	26,816
Stanislaus	1,795	19,293	167,804	528	528	273	546	287	972	312	1,993	395	15,254
Tulare	2,990	42,190	286,657	845	845	354	708	491	1,720	366	2,453	934	36,464
Total SJV Counties	**14,135**	**243,079**	**1,679,350**	**2,734**	**2,734**	**1,932**	**3,864**	**2,213**	**7,684**	**2,547**	**16,795**	**4,709**	**212,002**
Adjacent Counties													
Mariposa	35	193	549	0	0	14	28	7	28	11	65	3	72
Tuolumne	72	582	1,831	19	19	5	10	22	75	12	81	14	397
United States and California													
California	34,342	535,256	4,317,078	8,012	8,012	4,988	9,976	5,632	19,421	5,723	37,166	9,987	460,681
United States	554,434	3,036,470	18,568,446	208,224	208,224	112,722	225,444	104,232	354,400	73,825	467,084	55,431	1,781,318

Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Table 83. SJV Farm Workers by Days Worked — Less than 150 days, 2002

SJV Counties	# of Farms with Workers Who Worked Less than 150 days (farms)	# of Workers Who Worked Less than 150 days (workers)	Farms with 1 worker		Farms with 2 workers		Farms with 3 or 4 workers		Farms with 5 to 9 workers		Farms with 10 workers or more	
			Farms	Workers	Farms	Workers	Farms	Workers	Farms	Workers	Farms	Workers
Fresno	2,870	51,240	375	375	312	624	411	1,409	568	3,500	1,204	45,332
Kern	810	18,338	185	185	176	352	151	517	107	661	191	16,623
Kings	391	6,013	53	53	77	154	49	161	90	615	122	5,030
Madera	739	15,139	145	145	71	142	66	208	138	903	319	13,741
Merced	1,087	12,044	242	242	88	176	270	879	248	1,495	239	9,252
San Joaquin	1,370	22,634	216	216	210	420	233	814	287	1,877	424	19,307
Stanislaus	1,296	12,073	403	403	251	502	225	746	182	1,158	235	9,264
Tulare	2,114	27,915	614	614	236	472	355	1,219	278	1,742	631	23,868
Total SJV Counties	**10,677**	**165,396**	**2,233**	**2,233**	**1,421**	**2,842**	**1,760**	**5,953**	**1,898**	**11,951**	**3,365**	**142,417**
Adjacent Counties												
Mariposa	21	103	0	0	8	(D)	0	0	12	74	1	(D)
Tuolumne	70	520	21	21	4	8	22	75	9	54	14	362
California and the United States												
California	25,984	333,404	6,925	6,925	3,829	7,658	4,292	14,574	4,112	26,068	6,826	278,179
United States	455,669	2,108,762	193,688	193,688	92,695	185,390	79,961	269,149	51,000	319,676	38,325	1,140,859

(D) =Withheld to avoid disclosing data for individual farms.
Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Table 84. SJV Farm Workers by Days Worked — 150 Days or More, 2002

SJV Counties	# of Workers Who Worked 150 days or more (farms)	# of Workers Who Worked Workers 150 days or more (workers)	Farms with 1 worker		Farms with 2 workers		Farms with 3 or 4 workers		Farms with 5 to 9 workers		Farms with 10 workers or more	
			Farms	Workers	Farms	Workers	Farms	Workers	Farms	Workers	Farms	Workers
Fresno	1,849	18,751	585	585	250	500	311	1,065	316	1,981	387	14,620
Kern	844	13,183	181	181	217	434	125	430	92	629	229	11,509
Kings	441	4,256	51	51	109	218	88	301	89	603	104	3,083
Madera	555	3,992	195	195	113	226	89	297	84	527	74	2,747
Merced	1,061	7,683	291	291	171	342	230	821	199	1,272	170	4,957
San Joaquin	1,057	8,323	278	278	178	356	234	799	191	1,236	176	5,654
Stanislaus	1,016	7,220	313	313	158	316	185	617	183	1,159	177	4,815
Tulare	1,842	14,275	643	643	303	606	276	912	239	1,523	381	10,591
Total SJV Counties	**8,665**	**77,683**	**2,537**	**2,537**	**1,499**	**2,998**	**1,538**	**5,242**	**1,393**	**8,930**	**1,698**	**57,976**
Adjacent Counties												
Mariposa	16	90	0	0	7	(D)	7	28	0	0	2	(D)
Tuolumne	10	62	5	(D)	1	(D)	0	0	3	20	1	(D)
California and the United States												
California	19,950	201,852	5,757	5,757	3,456	6,912	3,535	11,937	3,261	20,650	3,941	156,596
United States	214,631	927,708	98,128	98,128	42,992	85,984	36,422	122,828	21,463	133,993	15,626	486,775

(D) =Withheld to avoid disclosing data for individual farms.
Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

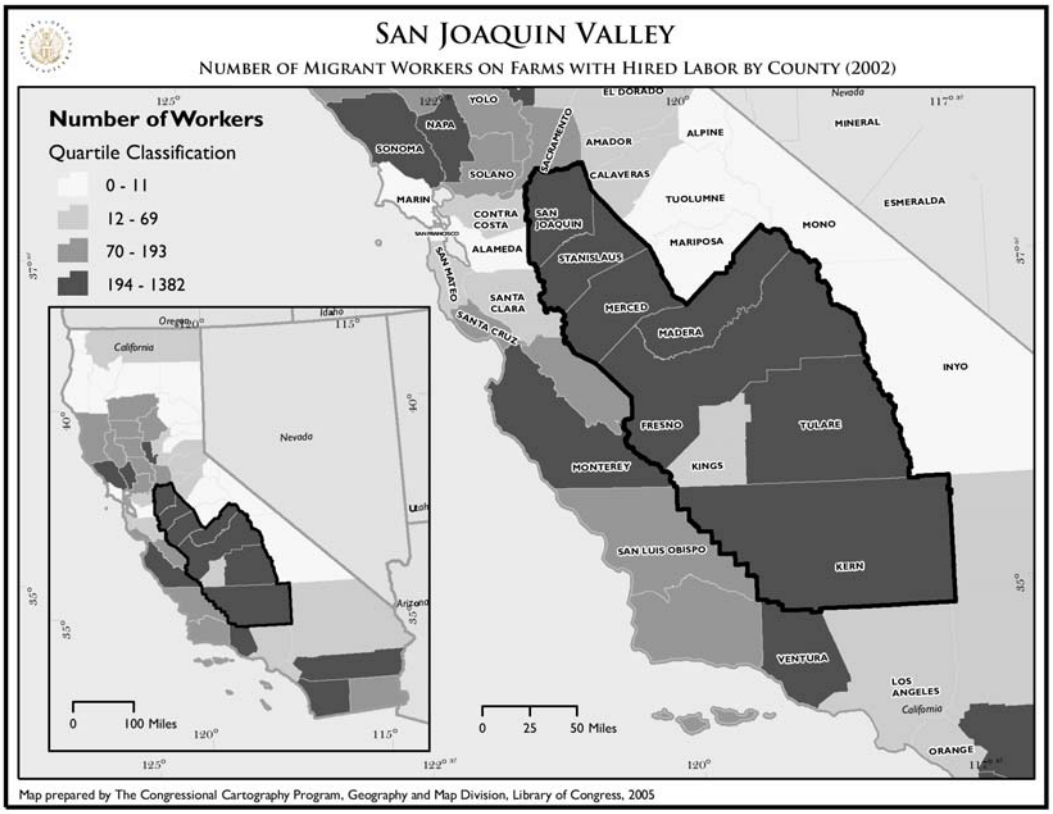
Table 85. SJV Migrant Farm Labor Valley, 2002

SJV Counties	Migrant farm labor on farms with hired labor	Migrant farm labor on farms reporting only contract labor
Fresno	1,382	206
Kern	302	46
Kings	52	30
Madera	379	35
Merced	348	62
San Joaquin	525	118
Stanislaus	311	81
Tulare	695	242
Total SJV Counties	**3,994**	**820**
Adjacent Counties		
Mariposa	8	0
Tuolumne	7	0
California and the United States		
California	8,787	1,521
United States	40,848	6,536

Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Notes: Information on migrant workers was collected for the first time in the 2002 census. Operators were asked whether any hired or contract workers were migrant workers, defined as a farm worker whose employment required travel that prevented the migrant worker from returning to his/her permanent place of residence the same day.

Figure 24. Number of Migrant Workers on Farms with Hired Labor by County, (2002)



Data Source: 2002 Census of Agriculture, USDA, National Agricultural Statistics Service

Agriculture's Future in the San Joaquin. As an economic driver in the regional economy and as a factor in the socioeconomic structure of the SJV, agriculture will likely continue to play a decisive role as it adapts to changing market, technological, and regulatory forces.[103] Increased public concerns about clean water, pesticide use, groundwater contamination, air quality, food safety, and long-term impacts on ecosystems will likely increasingly shape the future role of agriculture in the SJV. Intensification of production in fruits and nuts and vegetables and movement away from field crop acreage is likely to continue in coming years. In 1980, field crops used 72% of cropland in California, but accounted for only 43% of the value. Fruits and nuts and vegetables grown on 28% of the acreage contributed 57% of the value of agricultural products.[104] By 1997, these higher-valued, higher-risk crops accounted for 78% of the value from cropland, but used only 45% of the acreage. Such specialization of production and related processing and marketing are

---

[103] Johnston, Warren E. and Alex F. McCalla. *Whither California Agriculture: Up, Down, or Out? Some Thoughts about the Future*. Giannini Foundation Special Report 04-1, August 2004.

[104] Johnston, Warren E. And Harold Carter. "Structural adjustment, resources, global economy to challenge California agriculture." *California Agriculture*, 54(4), July-August 2000.

likely to become even more important to agriculture in the SJV in the future. However, this will likely occur with the continuing decline in the number of farms and the increasing size of those that remain. As the discussion above on supply chains indicated, structural changes in agriculture will likely make the sector more technological, managerial, and information intensive.

Research sponsored by the Great Valley Center and the California Trade and Commerce Agency has pointed to the dynamics underlying this changing agro-food system and their implications for the SJV.[105] This study identified five major forces that are driving change in SJV agriculture:

(1) the segmentation of mass markets;
(2) consolidation of the food distribution chain;
(3) globalization of markets;
(4) technology;
(5) environmental challenges.

Mass market segmentation can open new niche markets responding to new products, new uses for products, health/nutrition, and convenience. Supply chains will likely further consolidate the agro-food system creating a dual system of fewer but larger buyers and sellers and smaller niche actors. New global production and marketing strategies and partnerships can open new growth opportunities as well as new competitors. An increasing technologically driven market place (e.g., Internet sales) will likely require advanced telecommunication infrastructure.[106] Farm-to-retailer partnerships supported by the Internet may create new opportunities both for the smaller, niche oriented producer as well as for the largest producers and retailers. In the area of environmental challenges, water-related drainage and issues and non-point pollution concerns will likely become more important to producers and residents of the SJV alike. Precision agricultural technologies could become an essential part of SJV agriculture in the future.[107] This suite of technologies holds

---

[105] Great Valley Center. *Producing a Competitive Advantage: Agri-Tech in the SJV.* Modesto, California. December 2000.

[106] The Great Valley Center has published a series of studies on the importance of advanced telecommunications to the future of the SJV. In early 2000, the Center published individual assessments of each county in the SJV identifying strengths and weaknesses in each county's capacity for building greater connectivity to advanced telecommunications. See *Connecting (County): Assessing Our Readiness for the Networked World*. See also two other Center reports that examine the SJV's advanced telecommunication capacity: *Bridging the Digital Divide in the SJV: The Digital Divide Education Project of New Valley Connexions*. January 2000, and *Connecting to Compete in the New Economy.* May 2000.

[107] The expansion of precision irrigation technologies beyond agricultural production has been identified as a potential growth area that might be exploited as a driver for new economic opportunities in the SJV. See Great Valley Center. *The Economic Future of the SJV: Growing a Prosperous Economy that Benefits People and Place.* January, 2000. Modesto, California.

considerable promise for lessening the environmental impact of agricultural production.[108]

Other observers see the structure of California agriculture as a major factor in the SJV's continuing poverty and lack of new economic opportunity. During the 1980s, an analysis using the Urban Institute Underclass Database found that 100 additional farm jobs contributed to an increase of 136 immigrants, 139 poor residents, and 79 welfare recipients.[109] The newly arrived immigrants were not welfare recipients, but their presence helped to depress wages. This perspective on SJV agriculture might be seen as falling in the stream of research discussed earlier about the relation between community well-being and the presence of large, industrially managed farming operations. Mexican immigrants comprise the largest proportion of U.S. farmworkers (77%), and San Joaquin agriculture creates a steady demand for low-wage, low-skilled employment. Opportunities remain limited in the SJV to move out of agricultural labor and into other sectors. The steady demand for jobs encourages immigration and the absence of alternatives reinforces the expansion of agriculture. Efforts to raise farmworker incomes and educational levels can be hindered when there is a ready supply of new immigrant labor. If the SJV is unable to create new opportunities for resident immigrants, the poverty that so many Mexican immigrants are fleeing in their own county may be reproduced within the SJV.[110]

The Non-Agricultural Economy of the San Joaquin

Overview. Although farm jobs accounted for 17% of the employment in the Central Valley in 2000, other economic sectors, particularly the service sector, are growing. The service sector accounted for about 77% of the jobs in the Central Valley in 2003.[111] Agricultural employment actually declined in the Central Valley by 10,000 jobs between 1994-2003, with 85% of these jobs losses occurring in Fresno, Kern, Kings, Madera, and Tulare counties.[112] The three leading sectors of employment in the eight-county SJV are government, agriculture, and health services. The SJV led the greater Central Valley in retail sales from 1998-2002, averaging nearly $24 billion per year. Growth in retail sales suggests that such expenditures are likely benefitting the SJV, with spending occurring within the region rather than leaking outside to other areas. While this increased spending is indicative of economic vitality, retail service jobs generally pay lower wages relative to other jobs in the service sector.

---

[108] See CRS Report RL30630, *Precision Agriculture and Site-Specific Management: Current Status and Emerging Policy Issues*.

[109] Immigration and the Changing Face of Rural California and Rural America. Urban Institute Conference, March 24, 1998.

[110] Kasler, Dale. "Central Valley mired in grinding poverty." *Sacramento Bee*, January 24, 2000.

[111] Great Valley Center. *Assessing the Region via Indicators: The Economy, 1999-2004*. Modesto, California, January 2005.

[112] Ibid., p.22.

Throughout the 1990s, job growth in the Central Valley as a whole generally lagged behind growth in the size of the available labor force. Between 1988-1997, the labor force grew 21% in the Central Valley versus 13% in the state.[113] Between 1998-2003, the Central Valley labor force growth still outpaced job growth, 11.1% versus 10.5% respectively. Between 1991-1997, new business formation remained unchanged in the SJV, although the region led in the number of corporate headquarters (18) with 400 or more employees. Of the three subregions of the Central Valley (North Valley, Sacramento, and the SJV), the SJV consistently had the highest unemployment rate. Five of the ten highest annual U.S. unemployment rates for MSAs in 2003 were in the SJV .

As noted in Chapter 1, the FJI aims to create 30,000 net new jobs paying at least $30,000 each annually. The Initiative would aim to reduce Fresno county's unemployment rate to the statewide average by creating jobs in health care, advanced manufacturing, and distribution. Despite high unemployment rates, some SJV employers report shortages of workers. Hospitals, for example, say they cannot find Registered Nurses despite offering entry-level salaries of $45,000 to $55,000 a year.[114] Many residents are poorly educated. A third of SJV adults do not have a high-school diploma. As with many rural areas in the United States, SJV cities have also sought prisons as an economic stimulus. New prison jobs, however, do not necessarily go to local residents. Some observers believe that prisons, instead of creating jobs, may discourage investors from moving to the SJV.

SJV County Employment Profiles. Tables 86-97 provide data from the U.S. Bureau of Labor Statistics' *Quarterly Census of Employment and Wages* on the annual employment and pay of the 20 largest industries in each of the San Joaquin counties, Mariposa and Tuolumne counties, and California and the United States from 1990-2003.[115]

For comparative purposes, we have also included the same data for the four Appalachian states containing the 68-county Central Appalachian area: Kentucky, Tennessee, Virginia, and West Virginia. While the Appalachian state data are not comparable to Central Appalachia or the individual SJV counties, a comparative view may offer some insight into California and the SJV's relative standing within the same employment categories and average annual pay.

---

[113] Great Valley Center. *Assessing the Region via Indicators*. Modesto, California, July 1999.

[114] Rural Migration News. "California: SJV, Refugees." Rural Migration News, 10(3), July 2004.

[115] There are many sources for employment numbers. Those from the decennial census count the number of people with jobs at the time of enumeration. The Bureau of Labor Statistics (BLS) estimates people working (employed) or looking for work (unemployed) and estimates the number of jobs by industry based on covered employment. The Bureau of Economic Analysis estimates the number of jobs by industry (by place of work) and also includes sole proprietors (which BLS does not). Caution is urged when "mixing" sources, since each agency uses different estimation methods and therefore have somewhat different numbers.

Fresno County. Average annual pay grew 54% from $19,603 in 1990 to $30,196 in 2003. The total employment increased by over 45,000 jobs. In 1990, crop production was the largest source of employment, accounting for just under 10% of county annual employment. Total county employment was 283,020 workers. Crop production was followed by support activities for agriculture (8.5%), educational services (8.2%), food services and drinking establishments (5.1%), and food manufacturing (3.4%). Of these employment sectors, food manufacturing paid the highest annual wages ($23,009) in 1990 followed by educational services ($21,353). Reflecting the generally low wage rate in most food service employment, annual wages in that sector were $7,780. By 2003, educational services had the largest proportion of county jobs (9.3%) followed by support services for agriculture (8.2%), food services (5.7%), crop production (5.3%), and hospitals (3.8%). Of these top 5 employers, hospitals paid the average highest wages ($43,683) in 2003, up from $25,456 in 1990. In addition to hospital employment, ambulatory health care services also rose from 12th highest employer in 1990 to 9th in 2003.

Kern County. The average annual pay in Kern County increased by 44% between 1990-2003 compared to 60% for the United States and 62.8% for California. As with the United States as a whole and California, educational services was the largest employer category in Kern County in both 1990 and 2003, although in 2000, support services for agriculture was the leading employer. Total employment grew by about 45,000 jobs 1990-2003. Crop production fell from second place in 1990 to third in 2003, while food services were the third largest employment category in 1990 and 2003. Total county employment increased from 202,355 workers in 1990 to 247,760 workers in 2003. Educational services at 10% of county employment in 2003 was followed by support activities for agriculture (9.5%), crop production (6.9%), food services and drinking establishments (5.8%), and administrative and support services (3.6%). Of these employment sectors, educational services paid the highest annual wages ($36,044) in 2003 followed by administrative and support services ($21,247). With the presence of military bases in the county (Edwards Air Force Base and the Naval Petroleum Reserve), national security and international affairs employed over 6,000 persons at an annual wage of $68,324, which along with mining support activities ($51,312), were the highest paying employers in Kern County. Food services and agricultural support were the lowest paying jobs in the county. Ambulatory health care services in Kern County rose from 12th highest employer in 1990 to 6th in 2003.

Kings County. Average annual pay was $28,559 for Kern County compared to $42,592 for California and $37,765 for the United States. Crop production and support activities for agriculture and forestry were the leading employers in 1990, 2000, and 2003. Total employment in the county in 2003 was 38,112, up from 30,460 in 1990. Kings County, along with Madera and Merced counties, had the lowest annual employment numbers. In 2003, agricultural support activities, food manufacturing, and crop production were the top three employers and together accounted for 21.6% of total county employment. Average annual pay grew 36.2% from 1990 to 2003 ($20,967 and $28,559 respectively) compared to 62.8% for California as a whole and 60% for the United States. Total employment increased in the county by just under 8,000 jobs. Food services and ambulatory health care services ranked fourth and fifth respectively in employment. Ambulatory services, with 952 employees, has an average annual wage of $40,481, the third highest annual

pay after heavy and civil engineering construction ($49,516) and national security and international affairs ($45,263). The latter category likely reflects the presence of Lemoore Naval Air Station. In 2003, nursing and residential care facilities employed 592 persons, ranking 10th in employment. In 1990, that category was not among the 20 largest industries in the county.

Madera County. Average annual pay in Madera County increased from $23,961 in 2000 to $27,877 in 2003, a 16.3% increase. Between 1990 and 2003, average annual pay increased 54.5% compared to California's 62.8%. With a total of 40,465 employees in the county in 2003, crop production and agricultural support activities accounted for 18.1% of county employment and paid an average of about $15,000 annually. Crop production and agricultural support activities were also the top two employers in 1990, paying an average of about $10,500. In 2000 and 2003, justice, public order, and safety activities became the third largest employer with slightly over 1,900 jobs. No such employers were among the top 20 employers in 1990 and likely reflect the operation of two prisons in Madera County. Jobs in this sector paid an average of $41,432, third in ranking after non-metallic mineral product manufacturing ($58,535) and telecommunications ($51,007). Ranking 20th among employers in Madera County, telecommunications employed 434 persons in 2003. Madera County was the only SJV county where telecommunications ranked among the top 20 employers.

Merced County. Average annual wages increased 13.5% between 2000 and 2003 and 58.7% between 1990 and 2003. Food manufacturing and crop production are ranked first and second respectively in Merced County, the same as 1990, accounting for 17.1% of total employment in 2003. Total employment in the county grew by nearly 10,000 jobs 1990-2003. Employment growth in food manufacturing grew by 847 jobs between 1990 and 2003, while annual wages in the sector increased by 38.5%. Crop production employment, however, fell by over 1000 jobs between 1990 and 2003, although average pay for crop production jobs increased 53.5% in the county, somewhat lower than the average growth in pay for all job categories (58.7%). In 1990 and 2000, animal production was ranked fourth in total employment. By 2003, that category had disappeared from the top 20 employers and was replaced by agricultural support activities. Specialty trade contractors and ambulatory health care services were ranked fifth and sixth respectively. Management of companies and enterprises was also among the top 20 employers in 2003, accounting for over 1,000 workers and paying the highest average annual wages in the county ($49,873). This was not a top 20 category in 1990.

San Joaquin County. In 2003, San Joaquin County employees had the highest average annual pay of any of the 8 counties in the SJV ($32,956), increasing by 12.2% between 2000 and 2003. It also has a relatively diverse employment base with significant employment in hospitals, ambulatory health care services, professional, scientific, and technical services, and merchant wholesalers In 1990, crop production was the leading employment category in the county, accounting for 5.6% of total employment. By 2003, crop production had fallen to fourth place, losing 1,776 jobs. Food services became the leading employment category in 2003 with over 13,000 employees and accounting for 6.1% of the total county employment of 211,582. Crop production jobs in 2003, however, paid an annual average of $20,775 compared to $12,454 for food service jobs. This low annual wage is

consistent with many jobs in the expanding service sector. While many service sector jobs are among the highest paying, these tend to be in business and professional services. Administrative and support services were ranked second after food services. These jobs tend to pay better wages than food service employment, but they are also low relative to manufacturing and fabrication employment. Warehousing and storage employment provided 4,187 jobs in 2003, ranking 15th in the county and paying an average annual wage of $43,254. This category was not among the top 20 in 1990.

Stanislaus County. Average annual pay in Stanislaus County increased from $28,160 in 2000 to $31,926 in 2003, a 13.4% increase. Like San Joaquin County in 2003, the food service industry was the largest employer in Stanislaus County. In 1990 and 2000, food manufacturing was the leading sector in the county, accounting for 14,475 jobs, 10.5% of the total of 138,212 jobs. Food manufacturing employment fell by nearly 5,000 jobs between 1990 and 2003. This sector paid average annual wages of $37,047 in 2003 while food service employment paid $11,602 on average annually. Support services for agriculture ranked fifth in county employment and paid slightly more than food service employment. Ambulatory health care services and hospitals ranked sixth and seventh respectively and were the two highest annual paying categories. Average annual wages across the top 20 employers in the county increased 57.9% between 1990 and 2003, somewhat lower than California's growth rate (62.8%) and that of the average income growth nationally (60%). Stanislaus County had the third highest average annual pay ($31,926) after San Joaquin and Fresno counties.

Tulare County. Tulare County in 2003 had the lowest average annual pay among the 8 SJV counties ($26,637). Average annual pay, however, increased 11.9% between 2000 and 2003 and 52.2% between 1990 and 2003. Support activities for agriculture and forestry is the leading employment category with average annual pay of $15,250. Support activities for agriculture was also the leading sector in 1990. Educational services ranked second in 2003. In 1990, crop production ranked second with 10,574 workers; in 2003, crop production ranked third, having lost about 125 jobs over that time. By 2003, food services had increased employment by about 2,500 workers over that of 1990, but the category was still ranked the second largest employer. Hospital employment accounted for 6,243 workers in 2003 and ranked fifth in the county. In 1990, hospital employment was not among the top 20 employers and ranked only 14th in 2000. Total employment in the county rose from 111,085 in 1990 to 135,547, an increase of 18%. Animal production rose from 11th place in 1990 to 7th place in 2003, more than doubling employment in that area.

Mariposa County. Mariposa County's average annual pay in 2003, at $25,653, was lower than any SJV county, about $1,000 less than Tulare County. Annual pay also increased only 3.9% between 2000 and 2003 and 52.8% between 1990 and 2003. Reflecting the tourist destination that it is, the leading employment sector in 2003 was in hotels/motels and similar accommodations. This sector accounted for 30.8% of employment, 1,551 jobs out of a county total of 5,027. While accommodations also ranked first in 1990, the sector has lost about 400 jobs since 1990. Museums, historical sites, and similar institutions rank second in the county, the same as 1990. This sector grew by about 100 jobs between 1990 and

2003 to 627 jobs. Aside from 146 jobs in ambulatory health care services, most of the other 17 sectors each had fewer than 60 jobs each.

Tuolumne County. Annual pay across the county's top 20 categories averaged $29,535 in 2003, an increase of 15.9% over 2000 and a 50.2% increase between 1990 and 2003. Tuolumne County also had about three times the total employment of Mariposa County (17,510) in 2003. Food services was the leading employment category, paying an average annual wage in of $10,522. The sector added fewer than 100 jobs between 1990 and 2003. Average pay in the sector increased by 41.7 % between 1990 and 2003. The second largest employment category was justice, public order, and safety activities with somewhat under 1,200 jobs. The highest average paying categories were ambulatory health care services ($44,906) and professional, scientific, and technical workers ($43,253).

Table 86. Annual Employment and Average Annual Pay of the 20 Largest Industries, United States, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	108,603,565	$23,605	All	129,879,584	$35,331	All	127,795,827	$37,765
1	Educational Services	8,491,193	$23,223	Educational Services	10,554,237	$31,957	Educational Services	11,293,097	$35,009
2	Food Services and Drinking Places	6,321,450	$8,371	Food Services and Drinking Places	8,179,177	$11,882	Food Services and Drinking Places	8,593,004	$12,726
3	Professional, Scientific, and Technical Services	4,991,097	$34,892	Administrative and Support Services	7,760,581	$22,413	Administrative and Support Services	7,287,734	$25,356
4	Hospitals	4,592,588	$24,130	Professional, Scientific, and Technical Services	6,919,298	$57,955	Professional, Scientific, and Technical Services	6,744,928	$59,869
5	Administrative and Support Services	4,304,726	$15,336	Hospitals	5,070,038	$34,754	Hospitals	5,393,226	$40,410
6	Ambulatory Health Care Services	3,045,160	$32,275	Ambulatory Health Care Services	4,397,005	$41,068	Ambulatory Health Care Services	4,875,481	$44,491
7	Specialty Trade Contractors	3,027,590	$25,065	Specialty Trade Contractors	4,170,355	$35,117	Specialty Trade Contractors	4,216,229	$36,913
8	Food and Beverage Stores	2,712,706	$13,760	Merchant Wholesalers, Durable Goods	3,135,258	$50,116	Executive, Legislative, and Other General Government Support	3,098,922	$37,363
9	Executive, Legislative, and Other General Government Support	2,646,022	$23,276	Food and Beverage Stores	2,990,519	$17,907	Nursing and Residential Care Facilities	2,991,712	$23,044
10	General Merchandise Stores	2,633,741	$12,329	Executive, Legislative, and Other General Government Support	2,947,306	$33,452	Merchant Wholesalers, Durable Goods	2,929,332	$51,713
11	Merchant Wholesalers, Durable Goods	2,599,521	$31,780	General Merchandise Stores	2,862,087	$16,259	Food and Beverage Stores	2,864,053	$19,812
12	Credit Intermediation and Related Activities	2,548,473	$25,737	Nursing and Residential Care Facilities	2,794,034	$20,781	General Merchandise Stores	2,852,423	$18,457
13	Transportation Equipment Manufacturing	2,251,045	$34,771	Credit Intermediation and Related Activities	2,551,316	$43,134	Credit Intermediation and Related Activities	2,791,388	$52,341
14	Nursing and Residential Care Facilities	2,141,231	$13,865	Insurance Carriers and Related Activities	2,102,099	$48,448	Social Assistance	2,173,977	$20,807
15	Insurance Carriers and Related Activities	1,949,731	$30,503	Transportation Equipment Manufacturing	2,083,748	$49,812	Insurance Carriers and Related Activities	2,147,820	$55,419
16	Computer and Electronic Product Manufacturing	1,891,514	$34,986	Merchant Wholesalers, Nondurable Goods	2,006,512	$42,373	Merchant Wholesalers, Nondurable Goods	1,998,438	$46,800
17	Merchant Wholesalers, Nondurable Goods	1,702,214	$27,976	Social Assistance	1,972,690	$18,835	Motor Vehicle and Parts Dealers	1,878,753	$38,138
18	Accommodation	1,625,572	$12,940	Accommodation	1,875,478	$19,914	Accommodation	1,804,429	$21,580
19	Fabricated Metal Product Manufacturing	1,615,042	$26,747	Motor Vehicle and Parts Dealers	1,851,378	$35,379	Transportation Equipment Manufacturing	1,784,938	$55,968
20	Motor Vehicle and Parts Dealers	1,537,525	$23,842	Computer and Electronic Product Manufacturing	1,806,140	$71,168	Justice, Public Order, and Safety Activities	1,722,726	$47,563

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 87. Annual Employment and Pay of the 20 Largest Industries, California, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	13,262,696	$26,162	All	14,905,055	$41,263	All	14,807,656	$42,592
1	Educational Services	988,983	$24,283	Educational Services	1,222,682	$34,850	Educational Services	1,302,061	$39,360
2	Food Services and Drinking Places	770,684	$9,392	Administrative and Support Services	964,186	$24,539	Food Services and Drinking Places	971,410	$14,420
3	Professional, Scientific, and Technical Services	758,264	$37,125	Professional, Scientific, and Technical Services	959,261	$69,577	Professional, Scientific, and Technical Services	935,474	$67,814
4	Administrative and Support Services	627,830	$16,890	Food Services and Drinking Places	922,592	$13,139	Administrative and Support Services	898,902	$27,261
5	Computer and Electronic Product Manufacturing	471,439	$40,526	Specialty Trade Contractors	479,027	$37,557	Specialty Trade Contractors	518,395	$38,119
6	Hospitals	437,507	$28,274	Ambulatory Health Care Services	465,532	$42,327	Hospitals	497,947	$48,417
7	Specialty Trade Contractors	419,729	$27,028	Hospitals	450,210	$39,883	Ambulatory Health Care Services	495,932	$45,563
8	Ambulatory Health Care Services	378,291	$35,821	Computer and Electronic Product Manufacturing	430,785	$104,900	Merchant Wholesalers, Durable Goods	343,121	$54,899
9	Merchant Wholesalers, Durable Goods	342,919	$34,049	Merchant Wholesalers, Durable Goods	366,793	$52,027	Computer and Electronic Product Manufacturing	324,545	$87,273
10	Credit Intermediation and Related Activities	334,124	$28,409	Management of Companies and Enterprises	331,180	$68,091	Food and Beverage Stores	321,053	$26,374
11	Food and Beverage Stores	300,204	$19,452	Food and Beverage Stores	301,074	$25,478	Credit Intermediation and Related Activities	294,116	$63,535
12	Transportation Equipment Manufacturing	282,031	$38,743	Justice, Public Order, and Safety Activities	257,511	$52,071	Justice, Public Order, and Safety Activities	277,213	$58,825
13	General Merchandise Stores	280,067	$14,715	General Merchandise Stores	246,584	$18,085	General Merchandise Stores	264,868	$20,212
14	Insurance Carriers and Related Activities	216,425	$33,967	Credit Intermediation and Related Activities	236,432	$48,742	Management of Companies and Enterprises	255,557	$65,005
15	Crop Production	202,659	$13,469	Merchant Wholesalers, Nondurable Goods	223,880	$42,507	Merchant Wholesalers, Nondurable Goods	231,025	$47,079
16	Justice, Public Order, and Safety Activities	202,086	$38,278	Nursing and Residential Care Facilities	208,601	$21,192	Nursing and Residential Care Facilities	226,691	$24,084
17	Accommodation	201,437	$13,744	Insurance Carriers and Related Activities	201,969	$51,294	Insurance Carriers and Related Activities	220,886	$62,339
18	Merchant Wholesalers, Nondurable Goods	192,398	$30,163	Motor Vehicle and Parts Dealers	200,181	$39,913	Amusement, Gambling, and Recreation Industries	217,196	$21,598
19	Executive, Legislative, and Other General Government Support	186,540	$29,730	Crop Production	198,087	$19,226	Executive, Legislative, and Other General Government Support	209,625	$48,655
20	Food Manufacturing	184,942	$23,738	Accommodation	197,772	$20,745	Motor Vehicle and Parts Dealers	206,425	$42,794

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 88. Annual Employment and Pay of the 20 Largest Industries, Fresno County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	283,020	$19,603	All	324,397	$26,169	All	328,131	$30,196
1	Crop Production	26,529	$10,199	Support Activities for Agriculture and Forestry	34,536	$12,052	Educational Services	30,621	$34,195
2	Support Activities for Agriculture and Forestry	24,206	$10,554	Educational Services	29,415	$31,169	Support Activities for Agriculture and Forestry	26,986	$15,774
3	Educational Services	23,173	$21,353	Crop Production	19,666	$16,205	Food Services and Drinking Places	18,678	$11,552
4	Food Services and Drinking Places	14,667	$7,880	Food Services and Drinking Places	19,281	$10,006	Crop Production	17,286	$17,449
5	Food Manufacturing	9,563	$23,009	Administrative and Support Services	12,112	$18,608	Hospitals	12,730	$43,683
6	Specialty Trade Contractors	9,484	$22,606	Food Manufacturing	11,277	$26,728	Food Manufacturing	12,368	$28,383
7	Hospitals	8,708	$25,456	Ambulatory Health Care Services	10,006	$44,429	Specialty Trade Contractors	11,806	$32,181
8	Food and Beverage Stores	8,186	$17,027	Hospitals	9,920	$35,357	Administrative and Support Services	11,552	$22,097
9	Executive, Legislative, and Other General Government Support	8,012	$21,153	Specialty Trade Contractors	9,886	$29,562	Ambulatory Health Care Services	10,373	$47,917
10	Professional, Scientific, and Technical Services	7,334	$28,525	Professional, Scientific, and Technical Services	8,160	$36,810	Professional, Scientific, and Technical Services	9,162	$39,247
11	Administrative and Support Services	7,298	$13,626	Executive, Legislative, and Other General Government Support	7,842	$33,816	Executive, Legislative, and Other General Government Support	8,670	$38,440
12	Ambulatory Health Care Services	7,265	$35,460	General Merchandise Stores	6,164	$15,772	General Merchandise Stores	6,832	$18,014
13	General Merchandise Stores	6,376	$12,941	Food and Beverage Stores	6,053	$22,503	Food and Beverage Stores	6,474	$23,899
14	Merchant Wholesalers, Durable Goods	6,151	$25,265	Merchant Wholesalers, Durable Goods	5,965	$34,752	Nursing and Residential Care Facilities	6,096	$21,299
15	Merchant Wholesalers, Nondurable Goods	4,927	$28,098	Nursing and Residential Care Facilities	5,891	$18,390	Merchant Wholesalers, Durable Goods	5,918	$38,676
16	Credit Intermediation and Related Activities	4,877	$22,665	Private Households	5,261	$9,850	Motor Vehicle and Parts Dealers	5,373	$36,259
17	Motor Vehicle and Parts Dealers	4,200	$25,925	Merchant Wholesalers, Nondurable Goods	5,230	$39,812	Merchant Wholesalers, Nondurable Goods	5,310	$40,927
18	Insurance Carriers and Related Activities	4,038	$28,555	Motor Vehicle and Parts Dealers	5,039	$33,439	Management of Companies and Enterprises	4,575	$39,699
19	Construction of Buildings	3,855	$24,429	Insurance Carriers and Related Activities	4,974	$38,782	Credit Intermediation and Related Activities	4,422	$43,522
20	Truck Transportation	3,760	$23,468	Management of Companies and Enterprises	4,290	$36,095	Construction of Buildings	4,334	$40,154

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 89. Annual Employment and Pay of the 20 Largest Industries, Kern County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	202,355	$22,481	All	239,696	$28,410	All	247,760	$32,352
1	Educational Services	17,470	$23,742	Support Activities for Agriculture and Forestry	25,056	$11,748	Educational Services	25,198	$36,044
2	Crop Production	14,954	$14,884	Educational Services	23,491	$32,660	Support Activities for Agriculture and Forestry	23,649	$13,818
3	Support Activities for Agriculture and Forestry	14,228	$10,796	Crop Production	17,443	$18,777	Crop Production	17,187	$21,781
4	Food Services and Drinking Places	10,710	$7,743	Food Services and Drinking Places	13,519	$10,182	Food Services and Drinking Places	14,288	$11,665
5	National Security and International Affairs	8,224	$35,035	Administrative and Support Services	9,629	$19,642	Administrative and Support Services	8,989	$21,247
6	Professional, Scientific, and Technical Services	7,891	$29,645	Ambulatory Health Care Services	7,710	$38,014	Ambulatory Health Care Services	8,767	$42,034
7	Specialty Trade Contractors	7,670	$27,194	Professional, Scientific, and Technical Services	6,940	$38,867	Specialty Trade Contractors	8,299	$31,810
8	Administrative and Support Services	6,642	$15,221	Specialty Trade Contractors	6,892	$30,356	Professional, Scientific, and Technical Services	8,218	$42,729
9	Oil and Gas Extraction	5,981	$44,190	National Security and International Affairs	6,032	$59,354	Hospitals	6,610	$42,726
10	Support Activities for Mining	5,572	$32,133	Hospitals	5,351	$31,388	National Security and International Affairs	6,332	$68,324
11	Food and Beverage Stores	5,528	$17,269	Food and Beverage Stores	5,196	$24,123	Food and Beverage Stores	5,333	$22,665
12	Ambulatory Health Care Services	5,248	$30,439	Management of Companies and Enterprises	5,061	$35,344	Justice, Public Order, and Safety Activities	5,142	$39,012
13	Hospitals	4,716	$22,807	General Merchandise Stores	4,895	$15,313	General Merchandise Stores	4,868	$17,305
14	General Merchandise Stores	4,398	$11,618	Support Activities for Mining	4,543	$43,968	Food Manufacturing	4,655	$32,229
15	Heavy and Civil Engineering Construction	3,254	$29,771	Justice, Public Order, and Safety Activities	4,490	$35,100	Support Activities for Mining	4,144	$51,312
16	Executive, Legislative, and Other General Government Support	3,121	$26,860	Motor Vehicle and Parts Dealers	3,729	$31,759	Motor Vehicle and Parts Dealers	4,066	$34,475
17	Credit Intermediation and Related Activities	3,024	$23,592	Food Manufacturing	3,434	$29,291	Executive, Legislative, and Other General Government Support	3,513	$38,956
18	Merchant Wholesalers, Durable Goods	2,987	$26,538	Truck Transportation	3,421	$32,054	Nursing and Residential Care Facilities	3,473	$19,519
19	Motor Vehicle and Parts Dealers	2,882	$23,449	Executive, Legislative, and Other General Government Support	3,336	$35,360	Merchant Wholesalers, Durable Goods	3,308	$40,319
20	Truck Transportation	2,724	$24,323	Nursing and Residential Care Facilities	3,285	$17,311	Truck Transportation	3,193	$36,016

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 90. Annual Employment and Pay of the 20 Largest Industries, Kings County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	30,460	$20,967	All	36,464	$25,436	All	38,112	$28,559
1	Crop Production	3,273	$14,282	Support Activities for Agriculture and Forestry	3,988	$12,774	Support Activities for Agriculture and Forestry	2,922	$17,842
2	Food Services and Drinking Places	1,633	$11,298	Crop Production	2,642	$20,942	Food Manufacturing	2,675	$35,460
3	Support Activities for Agriculture and Forestry	1,510	$11,509	Food Manufacturing	2,140	$29,916	Crop Production	2,646	$22,552
4	Food Manufacturing	1,375	$22,608	Food Services and Drinking Places	1,962	$9,701	Food Services and Drinking Places	2,132	$10,827
5	National Security and International Affairs	1,004	$19,360	General Merchandise Stores	971	$13,966	Ambulatory Health Care Services	952	$40,481
6	Ambulatory Health Care Services	801	$28,832	Ambulatory Health Care Services	918	$36,673	General Merchandise Stores	881	$15,781
7	Food and Beverage Stores	648	$14,621	National Security and International Affairs	749	$40,427	Specialty Trade Contractors	795	$25,936
8	General Merchandise Stores	626	$12,253	Food and Beverage Stores	668	$18,287	Food and Beverage Stores	754	$21,873
9	Specialty Trade Contractors	462	$17,435	Specialty Trade Contractors	588	$23,909	National Security and International Affairs	741	$45,263
10	Executive, Legislative, and Other General Government Support	429	$24,275	Executive, Legislative, and Other General Government Support	549	$31,696	Nursing and Residential Care Facilities	592	$18,510
11	Merchant Wholesalers, Nondurable Goods	423	$41,592	Nursing and Residential Care Facilities	485	$18,464	Executive, Legislative, and Other General Government Support	577	$30,565
12	Motor Vehicle and Parts Dealers	406	$21,047	Motor Vehicle and Parts Dealers	440	$28,983	Rental and Leasing Services	500	$18,791
13	Credit Intermediation and Related Activities	390	$16,696	Gasoline Stations	394	$32,994	Professional, Scientific, and Technical Services	482	$35,117
14	Professional, Scientific, and Technical Services	344	$21,991	Professional, Scientific, and Technical Services	391	$33,484	Merchant Wholesalers, Nondurable Goods	414	$26,383
15	Educational Services	332	$10,116	Truck Transportation	346	$29,794	Credit Intermediation and Related Activities	384	$39,247
16	Construction of Buildings	289	$21,574	Merchant Wholesalers, Nondurable Goods	346	$33,918	Motor Vehicle and Parts Dealers	376	$32,997
17	Building Material and Garden Equipment and Supplies Dealers	286	$17,392	Heavy and Civil Engineering Construction	336	$44,922	Building Material and Garden Equipment and Supplies Dealers	372	$21,049
18	Truck Transportation	283	$20,547	Rental and Leasing Services	331	$19,270	Truck Transportation	353	$25,876
19	Clothing and Clothing Accessories Stores	227	$10,137	Credit Intermediation and Related Activities	327	$26,705	Heavy and Civil Engineering Construction	300	$49,516
20	Religious, Grantmaking, Civic, Professional, and Similar Organizations	226	$10,340	Building Material and Garden Equipment and Supplies Dealers	248	$21,069	Repair and Maintenance	282	$26,280

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 91. Annual Employment and Pay of the 20 Largest Industries, Madera County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	26,559	$18,048	All	39,016	$23,961	All	40,465	$27,877
1	Crop Production	4,234	$10,443	Support Activities for Agriculture and Forestry	6,147	$10,833	Support Activities for Agriculture and Forestry	3,806	$13,555
2	Support Activities for Agriculture and Forestry	2,370	$9,688	Crop Production	4,778	$15,993	Crop Production	3,511	$16,529
3	Food Services and Drinking Places	1,437	$7,014	Justice, Public Order, and Safety Activities	1,904	$37,185	Justice, Public Order, and Safety Activities	1,926	$41,432
4	Food Manufacturing	968	$20,050	Food Services and Drinking Places	1,746	$9,943	Food Services and Drinking Places	1,677	$11,370
5	Nonmetallic Mineral Product Manufacturing	727	$34,172	Ambulatory Health Care Services	948	$44,688	Specialty Trade Contractors	1,350	$27,342
6	Food and Beverage Stores	713	$16,906	Specialty Trade Contractors	845	$28,864	Professional, Scientific, and Technical Services	1,343	$16,166
7	Machinery Manufacturing	679	$31,370	Food and Beverage Stores	815	$21,273	Ambulatory Health Care Services	1,063	$48,608
8	Specialty Trade Contractors	635	$21,277	Nursing and Residential Care Facilities	746	$17,665	Food and Beverage Stores	988	$24,498
9	Beverage and Tobacco Product Manufacturing	609	$32,539	Nonmetallic Mineral Product Manufacturing	657	$47,753	Animal Production	850	$22,867
10	Ambulatory Health Care Services	552	$27,376	Machinery Manufacturing	635	$41,484	Administrative and Support Services	724	$18,071
11	Construction of Buildings	546	$21,245	Animal Production	592	$20,820	Nursing and Residential Care Facilities	718	$22,042
12	Motor Vehicle and Parts Dealers	489	$21,086	Administrative and Support Services	514	$13,280	Nonmetallic Mineral Product Manufacturing	663	$58,535
13	Animal Production	446	$15,400	Accommodation	503	$14,591	Machinery Manufacturing	652	$41,136
14	Executive, Legislative, and Other General Government Support	410	$22,229	General Merchandise Stores	492	$13,559	Construction of Buildings	613	$28,155
15	Building Material and Garden Equipment and Supplies Dealers	372	$20,482	Construction of Buildings	452	$25,258	Executive, Legislative, and Other General Government Support	548	$37,747
16	Nursing and Residential Care Facilities	304	$12,955	Motor Vehicle and Parts Dealers	436	$24,375	Accommodation	544	$15,774
17	Credit Intermediation and Related Activities	275	$18,554	Executive, Legislative, and Other General Government Support	435	$35,072	General Merchandise Stores	531	$16,820
18	Repair and Maintenance	258	$19,063	Private Households	385	$9,386	Food Manufacturing	514	$30,478
19	Administrative and Support Services	253	$12,298	Telecommunications	381	$41,159	Motor Vehicle and Parts Dealers	470	$27,146
20	Accommodation	251	$12,075	Food Manufacturing	353	$29,772	Telecommunications	434	$51,007

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 92. Annual Employment and Pay of the 20 Largest Industries, Merced County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	56,613	$17,731	All	64,611	$24,796	All	66,250	$28,152
1	Food Manufacturing	5,993	$21,352	Crop Production	5,682	$17,034	Food Manufacturing	6,840	$29,570
2	Crop Production	5,624	$12,892	Food Manufacturing	5,511	$26,875	Crop Production	4,560	$19,791
3	Food Services and Drinking Places	3,000	$7,654	Food Services and Drinking Places	3,609	$9,637	Food Services and Drinking Places	3,782	$11,202
4	Animal Production	2,200	$15,220	Animal Production	2,595	$21,808	Support Activities for Agriculture and Forestry	3,187	$15,535
5	Insurance Carriers and Related Activities	1,404	$23,296	Executive, Legislative, and Other General Government Support	1,815	$30,786	Specialty Trade Contractors	2,016	$27,034
6	Food and Beverage Stores	1,345	$16,886	Ambulatory Health Care Services	1,712	$35,206	Ambulatory Health Care Services	1,940	$38,542
7	Ambulatory Health Care Services	1,340	$28,926	General Merchandise Stores	1,615	$15,791	Executive, Legislative, and Other General Government Support	1,715	$39,124
8	General Merchandise Stores	1,203	$11,014	Food and Beverage Stores	1,488	$21,564	General Merchandise Stores	1,643	$17,791
9	Specialty Trade Contractors	1,164	$17,664	Administrative and Support Services	1,471	$14,997	Food and Beverage Stores	1,534	$22,030
10	Administrative and Support Services	1,122	$11,252	Specialty Trade Contractors	1,429	$23,083	Hospitals	1,519	$44,854
11	Executive, Legislative, and Other General Government Support	1,092	$23,063	Motor Vehicle and Parts Dealers	1,246	$27,084	Administrative and Support Services	1,443	$17,601
12	Truck Transportation	1,072	$22,968	Nursing and Residential Care Facilities	1,073	$16,112	Truck Transportation	1,249	$31,850
13	Fabricated Metal Product Manufacturing	944	$16,216	Professional, Scientific, and Technical Services	978	$32,791	Nursing and Residential Care Facilities	1,234	$19,749
14	Motor Vehicle and Parts Dealers	859	$21,466	Management of Companies and Enterprises	924	$71,835	Merchant Wholesalers, Nondurable Goods	1,065	$39,657
15	Nursing and Residential Care Facilities	847	$11,904	Insurance Carriers and Related Activities	923	$36,455	Motor Vehicle and Parts Dealers	1,059	$31,074
16	Merchant Wholesalers, Nondurable Goods	837	$22,269	Merchant Wholesalers, Nondurable Goods	898	$30,567	Private Households	1,010	$9,764
17	Professional, Scientific, and Technical Services	789	$24,108	Truck Transportation	708	$28,349	Management of Companies and Enterprises	1,006	$49,873
18	Credit Intermediation and Related Activities	654	$18,067	Repair and Maintenance	668	$25,586	Professional, Scientific, and Technical Services	904	$39,326
19	Construction of Buildings	579	$18,282	Private Households	609	$9,688	Construction of Buildings	765	$31,764
20	Gasoline Stations	564	$11,769	Building Material and Garden Equipment and Supplies Dealers	597	$27,655	Building Material and Garden Equipment and Supplies Dealers	761	$23,605

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 93. Annual Employment and Pay of the 20 Largest Industries, San Joaquin County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	169,650	$21,576	All	200,996	$29,355	All	211,582	$32,926
1	Crop Production	9,531	$11,778	Food Services and Drinking Places	11,497	$10,369	Food Services and Drinking Places	13,004	$12,454
2	Food Services and Drinking Places	9,432	$8,269	Administrative and Support Services	10,510	$18,321	Administrative and Support Services	9,811	$21,431
3	Food Manufacturing	8,526	$25,538	Crop Production	9,498	$18,993	Specialty Trade Contractors	9,519	$34,719
4	Administrative and Support Services	5,719	$17,658	Specialty Trade Contractors	7,490	$32,505	Crop Production	7,755	$20,775
5	Support Activities for Agriculture and Forestry	5,563	$7,531	Food Manufacturing	6,932	$34,886	Support Activities for Agriculture and Forestry	6,811	$16,495
6	Specialty Trade Contractors	5,435	$23,205	Support Activities for Agriculture and Forestry	6,506	$15,598	Hospitals	6,527	$45,123
7	Ambulatory Health Care Services	4,813	$32,816	Ambulatory Health Care Services	5,739	$40,359	Ambulatory Health Care Services	6,009	$41,434
8	Credit Intermediation and Related Activities	4,456	$26,335	Truck Transportation	5,563	$35,109	Justice, Public Order, and Safety Activities	5,665	$47,722
9	Hospitals	4,250	$24,796	Food and Beverage Stores	5,530	$25,096	Food and Beverage Stores	5,628	$25,076
10	Food and Beverage Stores	3,784	$18,464	Justice, Public Order, and Safety Activities	5,498	$42,300	Truck Transportation	5,345	$37,312
11	Justice, Public Order, and Safety Activities	3,759	$36,459	Hospitals	5,214	$34,758	General Merchandise Stores	5,220	$18,380
12	Truck Transportation	3,707	$24,726	General Merchandise Stores	4,662	$17,355	Food Manufacturing	5,148	$37,675
13	Nursing and Residential Care Facilities	3,498	$12,843	Nursing and Residential Care Facilities	4,655	$19,272	Professional, Scientific, and Technical Services	5,043	$49,468
14	General Merchandise Stores	3,267	$11,770	Professional, Scientific, and Technical Services	3,610	$38,867	Nursing and Residential Care Facilities	4,553	$22,101
15	Professional, Scientific, and Technical Services	3,227	$25,319	Fabricated Metal Product Manufacturing	3,583	$37,478	Warehousing and Storage	4,187	$43,254
16	Motor Vehicle and Parts Dealers	3,077	$22,861	Warehousing and Storage	3,552	$36,446	Merchant Wholesalers, Durable Goods	3,859	$41,457
17	Merchant Wholesalers, Durable Goods	3,018	$26,955	Merchant Wholesalers, Durable Goods	3,243	$38,611	Motor Vehicle and Parts Dealers	3,845	$38,447
18	Construction of Buildings	2,966	$26,034	Motor Vehicle and Parts Dealers	3,232	$35,515	Credit Intermediation and Related Activities	3,817	$42,371
19	Merchant Wholesalers, Nondurable Goods	2,617	$30,490	Educational Services	3,087	$21,666	Educational Services	3,499	$22,577
20	National Security and International Affairs	2,527	$25,860	Social Assistance	2,981	$19,518	Merchant Wholesalers, Nondurable Goods	3,344	$43,202

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 94. Annual Employment and Pay of the 20 Largest Industries, Stanislaus County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	138,212	$20,222	All	162,674	$28,160	All	166,988	$31,926
1	Food Manufacturing	14,475	$22,390	Food Manufacturing	11,772	$32,817	Food Services and Drinking Places	11,779	$11,602
2	Food Services and Drinking Places	7,797	$7,875	Food Services and Drinking Places	10,481	$9,933	Food Manufacturing	9,688	$37,047
3	Specialty Trade Contractors	6,092	$24,203	Administrative and Support Services	8,460	$18,554	Specialty Trade Contractors	8,526	$32,184
4	Crop Production	5,614	$13,151	Support Activities for Agriculture and Forestry	7,815	$9,842	Administrative and Support Services	6,978	$22,205
5	Support Activities for Agriculture and Forestry	5,608	$8,488	Specialty Trade Contractors	7,051	$29,751	Support Activities for Agriculture and Forestry	6,489	$13,714
6	Ambulatory Health Care Services	4,227	$32,892	Ambulatory Health Care Services	6,017	$38,348	Ambulatory Health Care Services	6,460	$44,421
7	Hospitals	4,166	$24,763	Crop Production	5,192	$18,656	Hospitals	6,076	$46,820
8	Food and Beverage Stores	3,776	$18,403	Management of Companies and Enterprises	4,916	$59,510	Food and Beverage Stores	4,706	$25,793
9	General Merchandise Stores	3,493	$11,463	Food and Beverage Stores	4,661	$24,351	Professional, Scientific, and Technical Services	4,591	$36,024
10	Animal Production	3,413	$16,986	Hospitals	4,320	$35,765	Crop Production	4,565	$20,065
11	Professional, Scientific, and Technical Services	2,974	$25,307	General Merchandise Stores	4,209	$15,480	General Merchandise Stores	4,418	$18,057
12	Administrative and Support Services	2,830	$13,287	Nursing and Residential Care Facilities	3,924	$19,375	Merchant Wholesalers, Nondurable Goods	3,725	$39,269
13	Executive, Legislative, and Other General Government Support	2,796	$26,021	Professional, Scientific, and Technical Services	3,851	$33,536	Executive, Legislative, and Other General Government Support	3,549	$43,171
14	Truck Transportation	2,209	$23,661	Executive, Legislative, and Other General Government Support	3,243	$38,096	Nursing and Residential Care Facilities	3,323	$23,627
15	Merchant Wholesalers, Nondurable Goods	2,141	$26,704	Motor Vehicle and Parts Dealers	2,921	$35,135	Motor Vehicle and Parts Dealers	3,242	$38,816
16	Motor Vehicle and Parts Dealers	2,090	$24,815	Animal Production	2,824	$21,602	Animal Production	2,934	$22,858
17	Fabricated Metal Product Manufacturing	2,046	$30,999	Merchant Wholesalers, Nondurable Goods	2,819	$35,132	Building Material and Garden Equipment and Supplies Dealers	2,363	$28,851
18	Construction of Buildings	2,012	$24,539	Fabricated Metal Product Manufacturing	2,552	$40,130	Fabricated Metal Product Manufacturing	2,239	$44,244
19	Nursing and Residential Care Facilities	1,956	$13,168	Merchant Wholesalers, Durable Goods	2,336	$38,401	Truck Transportation	2,218	$36,237
20	Credit Intermediation and Related Activities	1,943	$20,953	Building Material and Garden Equipment and Supplies Dealers	2,057	$24,442	Credit Intermediation and Related Activities	2,192	$49,067

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 95. Annual Employment and Pay of the 20 Largest Industries, Tulare County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	111,085	$17,506	All	132,816	$23,799	All	135,547	$26,637
1	Support Activities for Agriculture and Forestry	17,750	$9,712	Support Activities for Agriculture and Forestry	18,905	$13,178	Support Activities for Agriculture and Forestry	17,511	$15,250
2	Crop Production	10,574	$11,867	Educational Services	12,926	$33,082	Educational Services	13,729	$36,221
3	Educational Services	9,897	$24,112	Crop Production	11,589	$16,490	Crop Production	10,423	$17,187
4	Food Services and Drinking Places	4,682	$7,121	Food Services and Drinking Places	5,891	$10,568	Food Services and Drinking Places	6,362	$11,036
5	Food Manufacturing	4,332	$22,192	Administrative and Support Services	5,280	$15,179	Hospitals	6,243	$34,536
6	Food and Beverage Stores	3,041	$15,471	Animal Production	4,304	$21,936	Administrative and Support Services	5,070	$17,515
7	Specialty Trade Contractors	2,677	$19,818	Food Manufacturing	4,003	$36,229	Animal Production	4,877	$23,981
8	Ambulatory Health Care Services	2,495	$29,799	General Merchandise Stores	3,214	$18,998	Food Manufacturing	4,511	$40,515
9	Administrative and Support Services	2,145	$12,337	Ambulatory Health Care Services	3,190	$36,023	Specialty Trade Contractors	3,853	$29,462
10	Executive, Legislative, and Other General Government Support	2,126	$21,862	Specialty Trade Contractors	3,118	$27,548	Ambulatory Health Care Services	3,752	$40,427
11	Animal Production	2,032	$16,154	Executive, Legislative, and Other General Government Support	3,061	$30,189	Executive, Legislative, and Other General Government Support	3,074	$36,825
12	General Merchandise Stores	1,996	$11,123	Food and Beverage Stores	2,679	$20,445	General Merchandise Stores	2,878	$17,680
13	Truck Transportation	1,954	$21,720	Nursing and Residential Care Facilities	2,268	$17,251	Food and Beverage Stores	2,832	$21,328
14	Merchant Wholesalers, Nondurable Goods	1,899	$23,344	Hospitals	1,888	$27,699	Nursing and Residential Care Facilities	2,586	$18,822
15	Professional, Scientific, and Technical Services	1,806	$22,338	Professional, Scientific, and Technical Services	1,859	$30,459	Professional, Scientific, and Technical Services	2,142	$33,173
16	Printing and Related Support Activities	1,719	$24,538	Truck Transportation	1,858	$28,546	Warehousing and Storage	1,961	$32,179
17	Motor Vehicle and Parts Dealers	1,679	$20,768	Merchant Wholesalers, Nondurable Goods	1,857	$33,934	Insurance Carriers and Related Activities	1,852	$35,917
18	Hospitals	1,529	$29,829	Motor Vehicle and Parts Dealers	1,816	$29,112	Merchant Wholesalers, Nondurable Goods	1,786	$38,050
19	Nursing and Residential Care Facilities	1,468	$11,082	Warehousing and Storage	1,683	$24,679	Motor Vehicle and Parts Dealers	1,781	$32,393
20	Insurance Carriers and Related Activities	1,401	$21,857	Insurance Carriers and Related Activities	1,523	$31,591	Truck Transportation	1,714	$31,340

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 96. Annual Employment and Pay of the 20 Largest Industries, Mariposa County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annua pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	5,504	$16,787	All	4,815	$24,694	All	5,027	$25,653
1	Accommodation	1,907	$12,603	Accommodation	1,547	$20,376	Accommodation	1,551	$21,716
2	Museums, Historical Sites, and Similar Institutions	524	$24,592	Museums, Historical Sites, and Similar Institutions	551	$41,836	Museums, Historical Sites, and Similar Institutions	627	$34,901
3	Food and Beverage Stores	139	$10,467	Ambulatory Health Care Services	108	$24,564	Ambulatory Health Care Services	146	$27,407
4	Construction of Buildings	132	$18,046	Food and Beverage Stores	105	$17,497	Private Households	108	$12,865
5	Ambulatory Health Care Services	61	$15,318	Private Households	67	$11,065	Construction of Buildings	90	$21,695
6	Justice, Public Order, and Safety Activities	60	$41,770	Justice, Public Order, and Safety Activities	63	$37,569	Food and Beverage Stores	67	$20,002
7	Gasoline Stations	50	$12,761	Miscellaneous Store Retailers	49	$16,328	Specialty Trade Contractors	64	$23,880
8	Miscellaneous Store Retailers	36	$12,894	Gasoline Stations	43	$11,445	Justice, Public Order, and Safety Activities	61	$33,912
9	Building Material and Garden Equipment and Supplies Dealers	30	$12,508	Construction of Buildings	35	$25,812	Publishing Industries (except Internet)	48	$23,033
10	Postal Service	26	$26,205	Building Material and Garden Equipment and Supplies Dealers	33	$18,434	Building Material and Garden Equipment and Supplies Dealers	42	$17,722
11	Religious, Grantmaking, Civic, Professional, and Similar Organizations	21	$7,927	Social Assistance	29	$13,553	Heavy and Civil Engineering Construction	41	$30,617
12	Social Assistance	16	$9,821	Postal Service	25	$34,371	Gasoline Stations	40	$12,446
13	Administration of Environmental Quality Programs	12	$22,569	Administration of Environmental Quality Programs	20	$30,126	Health and Personal Care Stores	32	$21,698
14				Religious, Grantmaking, Civic, Professional, and Similar Organizations	18	$11,609	Social Assistance	29	$15,464
15				Administration of Economic Programs	16	$21,243	Administration of Environmental Quality Programs	24	$46,559
16							Postal Service	22	$37,370
17							Religious, Grantmaking, Civic, Professional, and Similar Organizations	20	$16,144
18							Motor Vehicle and Parts Dealers	17	$14,278
19							Repair and Maintenance	16	$22,178
20							Insurance Carriers and Related Activities	16	$44,124

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Table 97. Annual Employment and Pay of the 20 Largest Industries, Tuolumne County, 1990-2003

	1990			2000			2003		
Rank	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay	Industry	Annual employment	Average annual pay
	All	13,812	$19,669	All	15,514	$25,490	All	17,510	$29,535
1	Food Services and Drinking Places	1,220	$7,424	Food Services and Drinking Places	1,313	$8,830	Food Services and Drinking Places	1,308	$10,522
2	Food and Beverage Stores	555	$18,159	Justice, Public Order, and Safety Activities	828	$37,327	Justice, Public Order, and Safety Activities	1,181	$40,522
3	Construction of Buildings	530	$17,231	Food and Beverage Stores	556	$21,557	Ambulatory Health Care Services	749	$44,906
4	Specialty Trade Contractors	463	$17,955	Ambulatory Health Care Services	554	$44,210	General Merchandise Stores	549	$17,079
5	Administrative and Support Services	453	$12,646	General Merchandise Stores	550	$14,253	Professional, Scientific, and Technical Services	534	$43,253
6	Justice, Public Order, and Safety Activities	444	$44,916	Amusement, Gambling, and Recreation Industries	514	$12,260	Food and Beverage Stores	525	$24,514
7	Accommodation	441	$8,376	Professional, Scientific, and Technical Services	427	$31,823	Amusement, Gambling, and Recreation Industries	485	$15,837
8	Ambulatory Health Care Services	431	$27,638	Administrative and Support Services	409	$17,908	Specialty Trade Contractors	479	$27,310
9	Administration of Environmental Quality Programs	414	$25,233	Specialty Trade Contractors	409	$22,079	Construction of Buildings	439	$26,716
10	Amusement, Gambling, and Recreation Industries	357	$10,865	Construction of Buildings	383	$22,552	Administrative and Support Services	373	$19,897
11	Professional, Scientific, and Technical Services	328	$19,661	Accommodation	359	$10,423	Accommodation	371	$11,951
12	Credit Intermediation and Related Activities	321	$17,105	Religious, Grantmaking, Civic, Professional, and Similar Organizations	295	$16,702	Religious, Grantmaking, Civic, Professional, and Similar Organizations	339	$19,119
13	Insurance Carriers and Related Activities	265	$20,772	Machinery Manufacturing	262	$38,352	Executive, Legislative, and Other General Government Support	325	$37,720
14	Religious, Grantmaking, Civic, Professional, and Similar Organizations	242	$11,683	Executive, Legislative, and Other General Government Support	254	$33,072	Miscellaneous Store Retailers	271	$13,162
15	Executive, Legislative, and Other General Government Support	223	$21,743	Repair and Maintenance	247	$22,702	Administration of Environmental Quality Programs	242	$44,719
16	Building Material and Garden Equipment and Supplies Dealers	220	$19,123	Miscellaneous Store Retailers	211	$11,811	Repair and Maintenance	235	$25,574
17	General Merchandise Stores	193	$11,877	Real Estate	208	$19,599	Nursing and Residential Care Facilities	234	$22,663
18	Repair and Maintenance	181	$18,280	Nursing and Residential Care Facilities	206	$18,843	Building Material and Garden Equipment and Supplies Dealers	232	$24,399
19	Forestry and Logging	171	$31,194	Administration of Environmental Quality Programs	191	$39,274	Motor Vehicle and Parts Dealers	215	$29,804
20	Motor Vehicle and Parts Dealers	163	$23,187	Gasoline Stations	189	$12,877	Real Estate	207	$24,187

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages (QCEW)*, available at [http://www.bls.gov/cew/home.htm].
Note: Data refer to the average pay of employers to workers. An individual worker may work for more than one employer during the year or hold more than one job at the same time.

Appalachian State Employment Profiles. Similar data are not provided on each of the 68 Central Appalachian counties. Data on the four Appalachia states where the 68 counties are located reveal some similarities and differences with the San Joaquin. Like the United States and California, the largest industry in Kentucky, Tennessee, Virginia, and West Virginia in 2003 was educational services. Education services was also the largest industry in 1990 and 2000 for each state, with the exception of professional, scientific and technical services in Virginia in 1990. In 2003, educational services was also the largest industry in Fresno and Kern counties and the second largest industry in Tulare County. Food services, hospitals, and ambulatory health care services were also among the top six to eight industrial sectors in each of the states. Were the SJV not so heavily represented in crop production and agricultural services in their top five sectors, the SJV counties would look somewhat similar to West Virginia in terms of sectoral ranking. Average annual wages in West Virginia for all 20 sectors in 2003 was $29,284. The average annual wage for all 20 industrial categories for Fresno, Kern, San Joaquin, and Stanislaus counties was higher in 2003 than that of West Virginia. For Kings, Madera, Merced, and Tulare counties, the average wage was lower. In hospitals, ambulatory health care, professional, scientific, and technical services, food services, and government, average annual wages in the SJV tended to be higher than the same categories in West Virginia. Among the top 20 categories in West Virginia, chemical engineering and mining (except oil and gas) were the highest paying sectors in 2003, $68,494 and $55,330 respectively. National security and international affairs (military bases), support activities for mining, and non-metallic mineral product manufacturing were the highest paying sectors in the SJV.

Labor Force Characteristics in the San Joaquin. The preceding tables provide data on employment and wages. The data on average annual wages, however, may not reliably serve as an indicator of individual earning. The data in the preceding tables are average annual wages paid in an employment. That figure may or may not be for full-time employment. Even though a worker actually works full time, at least 35 hours per week, she may not work full-time year-round. Much work in the SJV may be seasonal agricultural work or other part time work. By examining the distribution of those employed workers by the number of weeks they actually work, we might get a better understanding of the structure of employment in the SJV.

Table 98 provides data on the percent of workers who usually worked full-time in the previous year. This could be full-time in a single employment sector, or full-time in several sectors. These data are quite stable over the 1980-2003 period, showing that over three-fourths of workers in the SJV usually worked full-time in the previous years. There was some reduction in the percent of workers working full-time in Madera County between 1980-2000. Fresno also had a reduction in percent of workers who usually worked full-time between 2000 and 2003, but other SJV saw some increase in the percent working full-time. Mariposa and Tuolumne counties showed a lower percent of workers who usually worked full-time between 1980-2000. The data on the SJV are also quite consistent with that for California and the United States as a whole.

Table 98. Percent of Workers Who Usually Worked Full-Time in the Previous Year: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV	78.6%	78.6%	78.6%	
Fresno	77.7%	77.2%	77.0%	75.7%
Kern	80.1%	80.2%	80.3%	80.1%
Kings	79.2%	80.1%	80.5%	
Madera	82.2%	78.3%	78.0%	
Merced	78.9%	78.7%	78.7%	
San Joaquin	77.9%	79.1%	78.9%	78.4%
Stanislaus	78.8%	79.1%	77.8%	80.9%
Tulare	77.9%	77.2%	79.2%	79.9%
Adjacent counties				
Mariposa	76.7%	77.8%	74.0%	
Tuolumne	78.3%	73.2%	72.1%	
California	78.2%	79.1%	78.6%	78.1%
United States	79.1%	78.3%	79.0%	78.4%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Notes: A person who usually works 35 or more hours a week is a full-time worker. A person who worked full-time during the weeks worked may or may not have worked year-round. Data for 2003 are from the *American Community Survey (ACS)*, which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Another way to look at regional labor data is the distribution of employed persons by the number of weeks worked in a year. **Table 99** breaks down distribution of employed persons by the number of weeks worked in the previous year. Here, the data reflect the relatively high proportion of SJV employed workers who work seasonal jobs. The data, however, do not tell us the number who worked full-time *and* year-round, 35 or more hours per week, 52 weeks per year.

In 2003, 55.7% of employed persons in the SJV worked 50-52 weeks in the previous year, up from 53.5% in 1990. An additional 16.6% worked 40-49 weeks during the previous year.[116] For California, nearly 70% worked 50-52 weeks the

[116] It is important to note, however, that "employed" does not necessarily mean employed full-time. An employed person, according to the U.S. Bureau of Labor Statistics, includes all persons who, during the reference week, (a) did any work at all (at least 1 hour) as paid

(continued...)

previous year, and the number working 40-49 weeks and 27-39 weeks, fell. For the United States as a whole, 67.8% of those employed worked 50-52 weeks in the previous year. Fresno, Kern, San Joaquin, Stanislaus, and Tulare have seen increases between 1990 and 2003 in the percent of persons employed year-round. Most of the SJV counties saw reductions in the percent of employed persons working 1-13 and 14-26 weeks in the previous year. Mariposa and Tuolumne counties have higher percentages of employed persons working 50-52 weeks per year. Both counties saw increases in the percent of employed persons working 50-52 weeks per year between 1990 and 2000.

---

[116] (...continued)
employees, worked in their own business or profession or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family, or (b) were not working but had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs.

Table 99. Distribution of Employed Persons by the Number of Weeks Worked in the Previous Year: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV				
1-13 Weeks	11.4%	10.4%	9.5%	
14-26 Weeks	11.1%	10.8%	9.9%	
27-39 Weeks	9.8%	9.0%	9.2%	
40-49 Weeks	15.3%	15.0%	16.6%	
50-52 Weeks	52.5%	54.7%	54.7%	
Fresno County				
1-13 Weeks	11.0%	10.2%	9.5%	8.5%
14-26 Weeks	11.2%	10.9%	10.2%	9.7%
27-39 Weeks	10.4%	9.5%	9.0%	6.5%
40-49 Weeks	15.4%	15.3%	17.3%	12.3%
50-52 Weeks	52.2%	54.1%	54.0%	63.1%
Kern County				
1-13 Weeks	10.7%	9.9%	9.6%	7.5%
14-26 Weeks	10.8%	11.0%	9.4%	6.9%
27-39 Weeks	9.8%	9.2%	9.5%	8.4%
40-49 Weeks	15.0%	14.2%	16.6%	12.5%
50-52 Weeks	53.7%	55.6%	54.9%	64.7%
Kings County				
1-13 Weeks	12.3%	11.9%	10.0%	
14-26 Weeks	10.8%	10.3%	10.6%	
27-39 Weeks	9.0%	8.7%	12.1%	
40-49 Weeks	14.6%	14.8%	20.4%	
50-52 Weeks	53.3%	54.4%	47.0%	
Madera County				
1-13 Weeks	11.3%	12.2%	11.0%	
14-26 Weeks	10.2%	12.1%	10.8%	
27-39 Weeks	10.4%	9.8%	10.4%	
40-49 Weeks	14.1%	15.9%	16.5%	
50-52 Weeks	54.0%	50.1%	51.3%	
Merced County				
1-13 Weeks	12.6%	10.6%	9.8%	
14-26 Weeks	11.0%	10.6%	10.3%	

	1980	1990	2000	2003
27-39 Weeks	9.6%	9.8%	9.7%	
40-49 Weeks	13.8%	14.2%	17.5%	
50-52 Weeks	53.1%	54.8%	52.7%	
San Joaquin County				
1-13 Weeks	11.5%	10.2%	9.5%	7.4%
14-26 Weeks	11.3%	10.3%	9.1%	10.4%
27-39 Weeks	9.2%	8.2%	8.1%	6.0%
40-49 Weeks	15.5%	14.9%	15.1%	11.6%
50-52 Weeks	52.5%	56.4%	58.3%	64.6%
Stanislaus County				
1-13 Weeks	12.7%	10.9%	9.1%	8.2%
14-26 Weeks	11.6%	10.7%	9.7%	8.4%
27-39 Weeks	9.1%	7.9%	8.4%	6.1%
40-49 Weeks	15.8%	14.2%	15.1%	10.9%
50-52 Weeks	50.8%	56.3%	57.8%	66.4%
Tulare County				
1-13 Weeks	11.1%	10.7%	9.3%	8.8%
14-26 Weeks	10.9%	11.5%	10.6%	8.0%
27-39 Weeks	10.0%	9.7%	10.5%	8.5%
40-49 Weeks	16.3%	16.9%	17.8%	12.0%
50-52 Weeks	51.8%	51.1%	51.7%	62.7%
Adjacent counties				
Mariposa County				
1-13 Weeks	13.2%	10.1%	8.2%	
14-26 Weeks	11.2%	11.3%	13.1%	
27-39 Weeks	12.8%	7.3%	7.6%	
40-49 Weeks	14.6%	13.9%	14.0%	
50-52 Weeks	48.2%	57.4%	57.2%	
Tuolumne County				
1-13 Weeks	12.5%	12.3%	10.9%	
14-26 Weeks	13.6%	10.2%	9.9%	
27-39 Weeks	11.2%	9.4%	7.2%	
40-49 Weeks	13.1%	13.5%	15.9%	
50-52 Weeks	49.6%	54.6%	56.1%	

	1980	1990	2000	2003
California				
1-13 Weeks	8.7%	7.9%	7.0%	7.6%
14-26 Weeks	9.5%	8.7%	7.8%	6.9%
27-39 Weeks	8.5%	7.4%	7.1%	5.8%
40-49 Weeks	15.9%	15.6%	16.9%	12.8%
50-52 Weeks	57.3%	60.4%	61.2%	66.9%
United States				
1-13 Weeks	8.9%	8.2%	6.6%	7.6%
14-26 Weeks	9.4%	8.6%	7.5%	6.6%
27-39 Weeks	8.5%	7.5%	6.7%	6.1%
40-49 Weeks	13.5%	12.8%	12.9%	11.9%
50-52 Weeks	59.7%	62.8%	66.2%	67.8%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: A person may be employed full-time (35 or more hours a week) or part-time. Details may not sum to 100% because of rounding. Data for 2003 are from the American Community Survey (ACS), which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 100 describes SJV workers on the basis of whether their income is earned through private wages and salaries, public employment, self-employment, or unpaid family work. The SJV has a lower percentage of workers earning private wages and salaries than does either California or the United States. In 2000, the United States as a whole had 78.5% of workers receiving private wages. In the SJV, 73.6% were similarly employed. The SJV counties also had higher percentages of workers self-employed and unpaid family members than either the United States or California. The SJV also had higher percentages of public employees than either the United States or California. Mariposa and Tuolumne counties had lower percentages of private wage and salary workers and higher percentages of self-employed and public employees than the SJV, California, or the United States.

Table 100. Class of Worker: United States, California, and the Counties of the SJV, 1980-2003

	1980	1990	2000	2003
SJV				
Private Wage and Salary	71.5%	73.5%	73.6%	
Public Employee	19.0%	17.7%	18.3%	
Self-Employed	8.8%	8.3%	7.6%	
Unpaid Family Worker	0.7%	0.5%	0.5%	
Fresno County				
Private Wage and Salary	70.9%	72.6%	72.4%	74.2%
Public Employee	20.2%	18.7%	19.7%	18.1%
Self-Employed	8.3%	8.2%	7.4%	7.3%
Unpaid Family Worker	0.7%	0.5%	0.5%	0.4%
Kern County				
Private Wage and Salary	71.4%	72.5%	71.2%	72.9%
Public Employee	19.9%	19.5%	20.6%	19.7%
Self-Employed	8.1%	7.6%	7.8%	7.1%
Unpaid Family Worker	0.6%	0.4%	0.5%	0.2%
Kings County				
Private Wage and Salary	68.5%	68.0%	65.8%	
Public Employee	20.9%	23.3%	26.6%	
Self-Employed	9.6%	7.8%	7.0%	
Unpaid Family Worker	1.0%	0.8%	0.6%	
Madera County				
Private Wage and Salary	69.5%	71.5%	72.2%	
Public Employee	18.7%	16.4%	17.8%	
Self-Employed	11.2%	10.9%	9.6%	
Unpaid Family Worker	0.7%	1.2%	0.5%	
Merced County				
Private Wage and Salary	70.3%	72.7%	75.0%	
Public Employee	19.0%	17.3%	16.8%	
Self-Employed	9.9%	9.2%	7.7%	
Unpaid Family Worker	0.9%	0.8%	0.6%	
San Joaquin County				
Private Wage and Salary	71.4%	74.6%	77.4%	77.1%
Public Employee	19.9%	17.4%	15.8%	15.5%
Self-Employed	8.3%	7.5%	6.5%	7.1%
Unpaid Family Worker	0.4%	0.5%	0.3%	0.3%
Stanislaus County				
Private Wage and Salary	75.2%	77.5%	76.7%	80.1%

	1980	1990	2000	2003
Public Employee	15.3%	13.7%	14.7%	12.4%
Self-Employed	8.9%	8.4%	8.1%	7.0%
Unpaid Family Worker	0.6%	0.4%	0.5%	0.4%
Tulare County				
Private Wage and Salary	71.0%	72.6%	72.8%	74.1%
Public Employee	17.8%	17.1%	18.4%	17.7%
Self-Employed	10.3%	9.6%	8.3%	7.8%
Unpaid Family Worker	0.9%	0.6%	0.5%	0.3%
Adjacent Counties				
Mariposa County				
Private Wage and Salary	57.9%	59.9%	60.5%	
Public Employee	29.3%	25.8%	25.1%	
Self-Employed	11.3%	13.8%	13.9%	
Unpaid Family Worker	1.5%	0.5%	0.5%	
Tuolumne County				
Private Wage and Salary	63.2%	66.8%	63.5%	
Public Employee	23.1%	19.4%	21.6%	
Self-Employed	12.9%	13.4%	14.5%	
Unpaid Family Worker	0.8%	0.4%	0.4%	
California				
Private Wage and Salary	75.5%	76.7%	76.5%	75.3%
Public Employee	16.4%	14.5%	14.7%	15.1%
Self-Employed	7.6%	8.4%	8.5%	9.3%
Unpaid Family Worker	0.5%	0.4%	0.4%	0.3%
United States				
Private Wage and Salary	75.6%	77.4%	78.5%	77.5%
Public Employee	17.1%	15.2%	14.6%	15.2%
Self-Employed	6.8%	7.0%	6.6%	7.1%
Unpaid Family Worker	0.5%	0.4%	0.3%	0.3%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1980 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983.

Note: An unpaid family worker is a person who works 15 or more hours a week without pay on a family farm or business. Details may not sum to 100% because of rounding. Data for 2003 are from the American Community Survey (ACS), which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Transportation to Work. In most areas of the United States, especially rural areas and other regions with little access to public transportation, the availability of a motor vehicle is a crucial asset for commuting to work, shopping, and getting to health care providers. With limited public transportation available in the SJV, approximately 95% of SJV workers in 2000 used private transportation to work **(Table 101)**. Most private transportation is by motor vehicle, and availability of vehicles in the SJV very closely matches that of California, and the percentage of those without access to vehicles is lower than for the United States (**Table 102**). The percentage of workers using private transportation in each of the eight SJV counties fell somewhat between 1980 and 2000. Some 1.3% used public transport to work in the SJV in 2000, although 3.3% of Kings County and 2.2% of Fresno County workers used public transportation in 1980. In 2000, 4.7% of U.S. workers and 5.1% used public transportation to work.

Table 101. Means of Transportation to Work: United States, California, and Counties of the SJV, 1980-2003

	1980			1990			2000			2003		
	Private	**Public**	**Other**	**Private**	**Public**	**Other**	**Private**	**Public**	**Other**	**Private**	**Public**	**Other**
SJV	95.4%	1.3%	3.3%	94.9%	1.0%	4.1%	94.6%	1.3%	4.0%			
Fresno County	94.5%	2.2%	3.2%	94.5%	1.5%	4.0%	94.2%	1.7%	4.1%	94.7%	1.7%	3.6%
Kern County	96.5%	1.2%	2.3%	95.8%	1.0%	3.3%	94.9%	1.4%	3.7%	91.5%	2.1%	6.4%
Kings County	92.8%	3.3%	3.8%	94.3%	1.5%	4.1%	94.5%	1.6%	3.9%			
Madera County	95.0%	0.4%	4.7%	93.7%	0.2%	6.1%	94.2%	0.7%	5.1%			
Merced County	95.0%	0.5%	4.5%	95.0%	0.3%	4.6%	95.2%	0.7%	4.1%			
San Joaquin	96.0%	1.1%	2.9%	94.8%	1.2%	4.0%	94.8%	1.4%	3.8%	95.4%	1.6%	3.0%
Stanislaus County	95.7%	0.6%	3.6%	95.2%	0.6%	4.2%	95.1%	1.0%	3.9%	94.7%	0.9%	4.4%
Tulare County	95.3%	0.2%	4.5%	94.6%	0.6%	4.7%	94.2%	0.9%	4.9%	94.9%	0.7%	4.3%
Adjacent counties												
Mariposa County	90.6%	2.5%	6.9%	93.6%	0.6%	5.8%	91.9%	1.4%	6.7%			
Tuolumne County	95.1%	0.6%	4.3%	94.6%	0.2%	5.3%	93.0%	0.6%	6.4%			
California	91.5%	5.8%	2.7%	91.1%	4.9%	4.0%	90.3%	5.1%	4.6%	90.1%	5.0%	4.9%
United States	90.6%	6.4%	3.0%	91.1%	5.3%	3.7%	91.3%	4.7%	4.0%	91.0%	4.8%	4.2%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov]; U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population: Social and Economic Characteristics*, U.S. Govt. Print. Off, 1993; U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population: General Social and Economic Characteristics, U.S. Govt. Print. Off., 1983.

Note: Details may not sum to 100% because of rounding. Data for 2003 are from the American Community Survey (ACS), which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Table 102. Vehicles Available Per Household: United States, California, and Counties of the SJV, 1990-2003

	1990	2000	2003
SJV			
None	8.9%	10.0%	
One	33.7%	33.5%	
Two or more	57.4%	56.5%	
Fresno County			
None	10.2%	11.2%	9.0%
One	35.7%	35.7%	33.0%
Two or more	54.1%	53.1%	58.0%
Kern County			
None	8.5%	10.4%	10.9%
One	34.3%	33.9%	31.1%
Two or more	57.3%	55.7%	58.0%
Kings County			
None	8.6%	9.3%	
One	34.1%	34.9%	
Two or more	57.4%	55.8%	
Madera County			
None	7.7%	8.1%	
One	28.4%	30.2%	
Two or more	64.0%	61.7%	
Merced County			
None	8.4%	10.4%	
One	33.2%	31.9%	
Two or more	58.5%	57.7%	
San Joaquin County			
None	9.5%	9.5%	4.6%
One	33.0%	32.2%	29.7%
Two or more	57.5%	58.3%	65.8%
Stanislaus County			
None	7.0%	8.6%	6.4%
One	31.3%	32.1%	29.4%
Two or more	61.6%	59.3%	64.2%

	1990	2000	2003
Tulare County			
None	8.7%	9.7%	8.7%
One	34.1%	33.3%	34.4%
Two or more	57.2%	57.0%	57.0%
Adjacent counties			
Mariposa County			
None	5.3%	5.7%	
One	29.1%	28.9%	
Two or more	65.6%	65.4%	
Tuolumne County			
None	4.4%	5.5%	
One	27.7%	29.7%	
Two or more	67.9%	64.8%	
California			
None	8.9%	9.5%	7.8%
One	33.2%	34.1%	32.5%
Two or more	57.9%	56.4%	59.7%
United States			
None	11.5%	10.3%	9.0%
One	33.8%	34.2%	33.3%
Two or more	54.7%	55.5%	57.6%

Source: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder*, available at [http://www.census.gov].

Notes: A household includes all persons who occupy a housing unit. A household may consist of one or more families or unrelated individuals sharing living arrangements or a combination of families and unrelated persons living together. Details may not sum to 100% because of rounding. Data for 2003 are from the American Community Survey (ACS), which is the planned replacement for the long questionnaire of the decennial census. The 2003 ACS did not cover all counties.

Fresno Regional Jobs Initiative. The lack of diversity in employment in the SJV is a major concern of the region's residents and civic leaders. The data presented above demonstrate that the SJV has not been able to attract the kinds of high-wage jobs on which the region can build. As discussed earlier, the ability to attract highly educated workers will be an important challenge in the future. To do

so will require developing those employment sectors that tend to offer good wages and salaries, training, and advancement. It will also be necessary to retain many of the educated SJV residents moving into the area today. If the economic structure of the SJV continues to offer largely unskilled and low-wage employment, the better educated SJV workers will likely leave for opportunities elsewhere. Losing college graduates and attracting workers without high school diplomas is not a recipe for long-term success.

Region-wide efforts to diversify local economies have much to recommend them. Regional approaches reduce jurisdictional competition in favor of combining resources in more efficient ways to make more effective use of public and private investments. By acting in concert, public-private partnerships in the counties of the SJV may be able to guide the region toward a more prosperous future. The Fresno Regional Jobs Initiative (RJI) is one such effort. The Fresno RJI has developed specific steps to achieve a goal of 30,000 net new jobs paying at least $30,000 in the Fresno and Madera area by 2008. While there are distinctive parts to the RJI strategy, the steps are based on the logic of identifying and cultivating centers of excellence for "economic clusters", developing a medical school in the region, establishing a metropolitan area network among the region's cities, and establishing a capital fund for industrial development. Centering on the Fresno-Madera metropolitan area, the objective is to create cluster-based economic development that will act as a catalyst for economic diversification throughout the SJV region.

The RJI has recognized that a significant number of businesses in the region are in a position to grow in the coming years. If these firms conclude that the SJV can support their expansion, they are more likely to expand from their current location rather than seek other areas for growing. The RJI is organized around the idea that cultivating these potentially expanding sectors is a viable development strategy. This regional effort to spur economic development through developing endogenous resources, as opposed to recruiting businesses through various incentives to relocate to the area, recognizes that the historical patterns of economic change that every region has can be a source of creating new competitive advantage. The RJI has already begun developing its first industrial cluster based on water and irrigation technologies. Other clusters include food processing, health care, information processing, agile manufacturing, tourism, advanced logistics and distribution, construction, innovative energy, and tourism.[117] The strength of the cluster model is that it uses geographic proximity of key actors in a production sector to further develop the sector. By expanding research that supports a particular sector, improving training, and developing new infrastructure, a local cluster builds on the interactions from ancillary and supporting firms. Developing successful clusters in rural or impoverished areas, however, may face particular obstacles that better capitalized urban regions avoid. Historic under-investment in a less-favored region stemming from weak infrastructure, low educational levels, low-skilled labor, lack of access to capital, regional isolation or insularity, and social exclusion, can work against developing new competitive advantage.[118]

---

[117] *Regional Jobs Initiative: Final Implementation Plan*. Fresno, CA. October, 2003.

[118] Rosenfeld, Stuart A. "Creating smart systems: A guide to cluster strategies in less (continued...)

The Health Care Industry as a Growth Sector for the SJV

CRS was asked to examine the potential of health care as an economic driver for the SJV economy. While a comprehensive industrial analysis of such a plan is well beyond the scope of this report, CRS analysts have assessed the basis of the RJI's identification of health care as a regional industrial cluster.[119] According to analysis in the RJI Implementation Report, Fresno County is increasingly becoming a hub for the delivery of health services in the Central California region. A range of local institutions currently exists in the Fresno area, including

Kaiser Permanente
Community Medical Centers
St. Agnes Medical Center
Children's Hospital Central California
Fresno Surgery Center
Fresno Heart Hospital
California State University-Fresno
University of California-San Francisco Fresno[120]
Fresno City College[121]

The Fresno RJI Implementation Plan identified two objectives for positioning health care as an expanding industrial cluster over the next five years (2004-2008).[122] First, the RJI intends to create the Valley Training and Education Consortium for Healthcare (VTECH), a multipartner healthcare professional training institute. Second, the RJI implementation plan calls for completing some of the substantial planning necessary for establishing a regional medical school and related biomedical research institutes.

The RJI Implementation Plan also points to the Fresno region's medical related expertise and specialized infrastructure as the basis of collaborative action in the health care cluster. Some of these identified capacities include:

Expanded and enhanced health professions education and training;

---

[118] (...continued)
favored regions." Paper presented at the European Union-Regional Innovation Strategies Conference, April, 2002. Paper available from Regional Technology Strategies, Carrboro, North Carolina. [http://www.rtsinc.org].

[119] Like the Fresno RJI, a report by the Great Valley Connexions also regarded health services as a source of economic growth in the SJV. That report also recognized the importance of raising the educational and training quality of the local population to take advantage of the growing health care industry in the SJV. See New Valley Connexions: *Good Medicine: Making Health Services an Economic Priority for the SJV*. Modesto, CA. December, 2003.

[120] The UCSF-Fresno Medical Education Program is the largest source of doctor training in the SJV .

[121] Fresno City College is the largest trainer of nurses in the SJV .

[122] Ibid., p. III.5

Increased healthcare infrastructure development, including specialty facilities;
Systematic expansion of the health supplier/medical equipment base;
Promotion of increased biomedical research;
Enhanced public health programs and initiatives;
Development of a full-scale graduate medical school.

Population growth, which is expected to be significant in the SJV over the next 20 years, will likely play an important role in creating opportunities for pursuing the kinds of collaborative actions above. As **Tables 86-97** above showed, ambulatory health care services and hospitals appear to be a growing employment sector throughout the SJV region. Population growth alone can have a stimulating effect on the demand for professional medical care services. **Table 103** shows 2002 data on the number of ambulatory healthcare firms in the SJV and the size of their annual payroll.

Four factors have been identified by researchers as important to the development of a successful industrial cluster:

Factor Conditions: Highly trained or trainable labor; capital tailored to the needs of particular industries; infrastructure;
Demand Conditions: Pressure from the area to create and improve the economic environment; sophisticated customers;
Context for Firm Strategy and Rivalry: Rules and incentives governing type and intensity of local rivalries influence productivity policies that encourage investment;
Related-Supported Industries: Local sourcing from capable regional suppliers.

Source: National Governor's Association and the Council on Competitiveness. Clusters of Innovation: Regional Foundations of U.S. Competitiveness, December, 2001.

Table 103. Ambulatory Health Care Services, 2002

SJV Counties	Number of Establishments	Receipts/Revenue ($1,000)	Annual Payroll ($1,000)
Fresno	1,365	1,261,571	515,842
Kern	907	899,441	325,693
Kings	131	103,793	41,339
Madera	137	104,900	49,336
Merced	285	213,017	78,862
San Joaquin	788	728,244	286,885
Stanislaus	717	940,242	373,396
Tulare	469	406,859	145,344
Total SJV Counties	**4,799**	**4,658,067**	**1,816,697**
Adjacent Counties			
Mariposa	14	D	D
Tuolumne	121	74,528	31,996
California and the United States			
California	63,903	60,317,860	22,485,566
United States*	488,551	493,192,661	203,716,176

Source: 2002 Economic Census, Health Care and Social Assistance, U.S. Census Bureau

Note: Ambulatory health care services include offices of physicians, dentists, other health practitioners; outpatient care centers; medical and diagnostic laboratories; home health care services; other ambulatory health care services; and hospitals.

D = Withheld to avoid disclosing data of individual companies; data are included in higher level totals.

* United States data are preliminary and will be superseded by data released in Fall 2005.

The siting and expansion of a graduate medical center, along with the attendant medical care services and specialized technical support industries in the SJV, could serve as a major source of regional economic growth and employment in the region. In this view, a well-trained and educated regional population would potentially benefit from the demand for employment in a large, regional biomedical complex. Such a complex would also attract educated employees and health services firms from other locations. Predicting the variables that may ultimately go into the decision to develop a graduate medical complex in the region, however, is very difficult. The recent establishment of the new University of California-Merced campus, the first U-Cal campus since 1969, could reasonably be considered a first step in the region's plans to develop such a graduate medical complex.

Building on existing strengths and developing new opportunities based on those strengths is the logic of cluster-led industrial development. An expanding health care employment sector, the location of new medical supply industries, a pool of potential health-related collaborative organizations, and research and higher education facilities are arguably key ingredients in a health care industrial cluster. The Fresno region seemingly has some of the basic building blocks for creating and nurturing a health care cluster. The existence of growing health care employment could provide a foundation for expanding the range of support services that such employment may demand.

Poverty in the SJV, however, may be an important factor in predicting how a health care cluster might develop. Many SJV residents are MediCal (the state's Medicaid program) recipients or medically indigent according to one market study.[123] Like many rural areas in the United States, many residents in the SJV have been historically underserved. Low rates of insured residents and market forces can push smaller medical providers and public facilities to close, perhaps undermining some of the collaboration that cluster development needs. A report by the Great Valley Center also regarded health services as a source of future economic growth in the SJV. That report examined public health and access to health care in the Cental Valley and concluded that strategies to boost economic well-being, including economic development and workforce investment, can increase access to health care.[124] While the concern of the report was access to health care and health care outcome among SJV residents, the socioeconomic profile of the SJV is likely to play a subtle but influential role in the success of a health care cluster.

Tables 104-108 provide detailed data on health-related employment and wages for the SJV's five MSAs. Because the Fresno RJI is intended to stimulate economic growth and change throughout the entire SJV, we have examined the health-related employment and wages for each of the region's MSAs.

The data in the tables below were compiled from the April 2005 Occupational Employment Statistics survey and are based on three of the U.S. Department of Labor's Standard Occupational Classification codes (SOC) related to healthcare employment: (1) medical and health service managers (SOC 11-9111), (2) health care practitioners and technical occupations (SOC 29-000), and (3) health care support services (SOC 31-000). The data provide employment estimates, entry-level hourly wages, mean hourly wage, and mean annual wage based on wage data from the third quarter 2004.

A brief overview of the data for the San Joaquin Valley and each MSA is provided below.

San Joaquin Valley. The 5 MSAs together had a total of 74,410 health care workers in 2004. Of these, 1,300 were medical managers, 45,130 were health

---

[123] Shinkman, Ron. "A different California: in SJV, healthcare presents challenges." Modern Healthcare, 28(19), May 11, 1998.

[124] Great Valley Center. *Assessing the Region via Indicators: Public Health and Access to Care*. January 2003.

practitioners, and 27,980 were health care support service employees. The average annual wages in 2004 for medical managers was $79,298; for health practitioners, $74,382; and for healthcare support services, $23,079. These wages compare relatively favorably to the entire state of California. While the average annual wage for medical managers and health support services were higher for California than for the SJV, healthcare practitioners and technical occupations wages averaged $67,502 in the SJV. The Fresno MSA had the highest average annual healthcare practitioners wages ($63,244) and the Visalia-Tulare-Porter MSA had the lowest estimated average annual wages in the SJV for each SOC code ($57,708). The total number of registered nurses, which the RJI has identified as being in short supply compared to demand, was 18,840, 25% of the total estimated healthcare employment in the 5 MSAs.

Bakersfield MSA. Of the 15,090 healthcare workers in the Bakersfield MSA, registered nurses and licensed practical nurses accounted for about 28% of the MSA's total health care employment. Registered nurses comprised about 22% of the health care employment. In California, registered nurses comprised 23.7% of estimated health care employment in 2004. The average annual wages of the SOCs range from a high of $83,876 for medical managers to a low of $22,802 for health care support. Average annual wages for health care practitioners were $61,355.

Fresno MSA. The Fresno MSA had the highest estimated health care employment (23,800), the highest average annual wages, and the largest number of medical and health service managers. These characteristics, plus its population size in the SJV, make it a center of a health care. There were an estimated 15,060 health practitioners, 530 medical managers, and 8,210 health care support workers for a total of 23,800. Within the practitioner SOC, there were 5,760 registered nurses, over 38% of total estimated health practitioners, considerably higher than the estimated proportion of registered nurses for California. The average annual health practitioner's wage was $63,244.

Modesto MSA. The Modesto MSA had an estimated 12,500 health care employees in 2004. There were 140 medical managers, 7,460 practitioners, and 4,900 health care service workers. Wages for practitioners and health care support workers compare favorably to those of California. This suggests that some portion of health care professionals who are employed in more competitive markets in the state might find the SJV an attractive place to relocate their practices. Average annual health worker wages for Modesto were $74,572 for medical managers, $67,829 for practitioners, and $25,720 for health service workers.

Stockton-Lodi MSA. After the Visalia-Tulare-Porter MSA, the Stockton-Lodi MSA had the lowest annual wages for health care employment, although it had the second highest number of medical and health service managers of any SJV MSA. There were 410 managers with an average annual wage of $74,272. Medical management wages were the highest of the three SOCs in the other four MSAs, but were lower in the Stockton-Lodi MSA. The Stockton-Lodi MSA also had the third highest number of practitioners, and their estimated average annual wage was higher than that of Fresno MSA practitioners.

Visalia-Tulare-Porterville MSA. The Visalia-Tulare-Porterville MSA had the smallest number of health care employees (9,050) and the lowest annual average wages for health care practitioners ($57,708). Mean wages for MDs were generally higher in the other MSAs which biased that SOC's average annual wage level. There were also fewer practitioners in most of the individual specialties. Over 30% of the MSA's health practitioners were registered nurses.

Table 104. Bakersfield MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results

Geography: Bakersfield MSA			County: Kern		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
11-9111	**Medical and Health Services Managers**	**140**	**21.02**	**40.32**	**83,876**
29-0000	**Healthcare Practitioners and Technical Occupations**	**8,860**	**15.45**	**29.50**	**61,355**
29-1011	Chiropractors	[c]	19.00	38.42	79,926
29-1020	Dentists	120	37.43	62.21	129,397
29-1031	Dietitians and Nutritionists	[c]	20.02	26.79	55,704
29-1041	Optometrists	[c]	36.93	55.37	115,159
29-1051	Pharmacists	340	40.61	50.11	104,221
29-1062	Family and General Practitioners	150	49.45	76.64	159,419
29-1063	Internists, General	[c]	58.85	75.85	157,779
29-1065	Pediatricians, General	[c]	63.11	73.77	153,449
29-1066	Psychiatrists	[c]	46.60	73.52	152,920
29-1067	Surgeons	60	54.32	69.53	144,627
29-1069	Physicians and Surgeons, All Other	50	57.55	84.25	175,253
29-1071	Physician Assistants	100	32.03	37.89	78,810
29-1111	Registered Nurses	3,360	23.80	31.20	64,890
29-1121	Audiologists	[c]	25.72	33.24	69,146
29-1122	Occupational Therapists	[c]	23.90	29.75	61,864
29-1123	Physical Therapists	140	24.24	33.98	70,692
29-1124	Radiation Therapists	20	24.18	31.32	65,143
29-1126	Respiratory Therapists	250	19.76	24.89	51,778

Geography: Bakersfield MSA			County: Kern		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
29-1127	Speech-Language Pathologists	190	22.42	30.51	63,457
29-1131	Veterinarians	60	31.26	47.62	99,041
29-2011	Medical and Clinical Laboratory Technologists	190	22.61	27.20	56,570
29-2012	Medical and Clinical Laboratory Technicians	260	10.84	15.30	31,829
29-2021	Dental Hygienists	70	25.50	30.90	64,269
29-2031	Cardiovascular Technologists and Technicians	[c]	15.86	19.82	41,235
29-2032	Diagnostic Medical Sonographers	60	10.63	22.84	47,504
29-2033	Nuclear Medicine Technologists	40	25.05	28.13	58,510
29-2034	Radiologic Technologists and Technicians	310	15.91	21.77	45,278
29-2051	Dietetic Technicians	20	10.22	14.77	30,716
29-2052	Pharmacy Technicians	320	12.68	15.50	32,232
29-2053	Psychiatric Technicians	40	17.77	21.07	43,814
29-2055	Surgical Technologists	170	14.38	19.64	40,856
29-2056	Veterinary Technologists and Technicians	[c]	10.51	13.82	28,752
29-2061	Licensed Practical and Licensed Vocational Nurses	840	15.42	18.81	39,116
29-2071	Medical Records and Health Information Technicians	350	7.91	11.83	24,627
29-2081	Opticians, Dispensing	160	10.74	14.18	29,495
29-9010	Occupational Health and Safety Specialists and Technicians	70	17.75	29.08	60,474
29-9199	All Other Health Professionals and Technicians	320	11.47	16.27	33,826
31-0000	**Healthcare Support Occupations**	**6,080**	**8.05**	**10.97**	**22,802**

Geography: Bakersfield MSA			County: Kern		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
31-1011	Home Health Aides	890	7.49	8.64	17,959
31-1012	Nursing Aides, Orderlies, and Attendants	2,030	8.45	9.96	20,723
31-2011	Occupational Therapist Assistants	40	10.19	19.51	40,584
31-2021	Physical Therapist Assistants	[c]	18.47	20.94	43,550
31-2022	Physical Therapist Aides	80	7.47	9.37	19,479
31-9011	Massage Therapists	[c]	15.31	16.03	33,353
31-9091	Dental Assistants	580	7.67	10.42	21,680
31-9092	Medical Assistants	1,380	9.05	12.14	25,260
31-9093	Medical Equipment Preparers	60	8.23	11.22	23,329
31-9094	Medical Transcriptionists	210	13.22	15.33	31,896
31-9095	Pharmacy Aides	60	8.35	11.80	24,532
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	100	7.76	9.85	20,503
31-9099	Healthcare Support Workers, All Other	490	9.45	12.20	25,391

a. The mean of the first third of the wage distribution is provided as a proxy for entry-level wage.
b. For some occupations, workers may not work full-time all year-round. For these occupations it is not feasible to calculate an hourly wage.
c. An estimate of employment could not be provided.
d. An estimate of wage could not be provided.

Source: (Released April 2005) These survey data are from the 2003 Occupational Employment Statistics (OES) survey. The wages have all been updated to the **third quarter of 2004** by applying the U.S. Department of Labor's Employment Cost Index to the 2003 wages. Occupations are classified using the Standard Occupational Classification (SOC) codes. For details of the methodology, see the Overview of the OES Survey at [http://www.calmis.ca.gov/file/occup$/oeswages/oestechnotes.htm].

Table 105. Fresno MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results

Geography: Fresno MSA		County: Fresno and Madera			
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage [a]	Mean Hourly Wage	Mean Annual Wage
11-9111	**Medical and Health Services Managers**	**530**	**28.37**	**42.46**	**88,323**
29-0000	**Healthcare Practitioners and Technical Occupations**	**15,060**	**15.60**	**30.40**	**63,244**
29-1011	Chiropractors	20	25.28	25.29	52,616
29-1020	Dentists	[c]	48.37	65.98	137,250
29-1031	Dietitians and Nutritionists	130	20.19	25.75	53,563
29-1041	Optometrists	40	26.38	42.62	88,642
29-1051	Pharmacists	560	32.73	46.97	97,697
29-1062	Family and General Practitioners	120	47.27	71.48	148,673
29-1063	Internists, General	[c]	44.46	71.03	147,738
29-1065	Pediatricians, General	[c]	55.08	79.93	166,255
29-1066	Psychiatrists	60	>$70.01	84.55	175,855
29-1067	Surgeons	[c]	>$70.01	87.90	182,830
29-1069	Physicians and Surgeons, All Other	520	20.67	64.07	133,253
29-1071	Physician Assistants	120	27.95	36.41	75,728
29-1081	Podiatrists	[c]	41.49	48.42	100,702
29-1111	Registered Nurses	5,760	21.80	30.31	63,042
29-1121	Audiologists	[c]	28.00	30.75	63,964
29-1122	Occupational Therapists	90	25.24	31.60	65,731
29-1123	Physical Therapists	160	25.33	31.23	64,956
29-1125	Recreational Therapists	40	9.10	14.91	31,002
29-1126	Respiratory Therapists	400	18.61	22.73	47,285
29-1127	Speech-Language Pathologists	[c]	21.23	27.64	57,496
29-1131	Veterinarians	20	26.87	35.35	73,520
29-2011	Medical and Clinical Laboratory Technologists	260	22.93	28.14	58,526

Geography: Fresno MSA		County: Fresno and Madera			
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage [a]	Mean Hourly Wage	Mean Annual Wage
29-2012	Medical and Clinical Laboratory Technicians	160	11.81	18.78	39,053
29-2021	Dental Hygienists	650	18.39	24.53	51,036
29-2032	Diagnostic Medical Sonographers	70	18.54	24.73	51,443
29-2033	Nuclear Medicine Technologists	20	25.68	29.61	61,598
29-2034	Radiologic Technologists and Technicians	390	16.72	22.95	47,735
29-2041	Emergency Medical Technicians and Paramedics	500	8.95	14.97	31,131
29-2052	Pharmacy Technicians	470	12.31	15.29	31,813
29-2055	Surgical Technologists	[c]	14.81	19.39	40,338
29-2056	Veterinary Technologists and Technicians	[c]	9.47	11.37	23,644
29-2061	Licensed Practical and Licensed Vocational Nurses	1,250	14.79	17.92	37,269
29-2071	Medical Records and Health Information Technicians	390	9.22	13.82	28,748
29-2081	Opticians, Dispensing	200	9.49	13.43	27,922
29-9010	Occupational Health and Safety Specialists and Technicians	50	16.30	23.55	48,979
29-9091	Athletic Trainers	[c]	[b]	[b]	31,783
29-9199	All Other Health Professionals and Technicians	600	11.39	15.63	32,511
31-0000	**Healthcare Support Occupations**	**8,210**	**8.03**	**10.93**	**22,736**
31-1011	Home Health Aides	1,000	7.62	8.44	17,547
31-1012	Nursing Aides, Orderlies, and Attendants	3,080	8.19	10.18	21,166
31-2011	Occupational Therapist Assistants	30	15.93	19.65	40,853
31-2012	Occupational Therapist Aides	30	8.14	9.42	19,581

Geography: Fresno MSA		County: Fresno and Madera			
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage [a]	Mean Hourly Wage	Mean Annual Wage
31-2021	Physical Therapist Assistants	50	16.60	22.36	46,514
31-2022	Physical Therapist Aides	140	9.09	10.40	21,641
31-9011	Massage Therapists	[c]	10.51	12.92	26,883
31-9091	Dental Assistants	870	10.67	14.27	29,682
31-9092	Medical Assistants	1,210	8.50	11.52	23,981
31-9093	Medical Equipment Preparers	100	8.89	12.61	26,216
31-9094	Medical Transcriptionists	230	10.59	13.82	28,726
31-9095	Pharmacy Aides	[c]	7.95	9.13	18,995
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	[c]	7.69	7.98	16,590
31-9099	Healthcare Support Workers, All Other	850	9.50	11.87	24,692

a. The mean of the first third of the wage distribution is provided as a proxy for entry-level wage.
b. For some occupations, workers may not work full-time all year-round. For these occupations it is not feasible to calculate an hourly wage.
c. An estimate of employment could not be provided.
d. An estimate of wage could not be provided.

Source: (Released April 2005) These survey data are from the 2003 Occupational Employment Statistics (OES) survey. The wages have all been updated to the **third quarter of 2004** by applying the U.S. Department of Labor's Employment Cost Index to the 2003 wages. Occupations are classified using the Standard Occupational Classification (SOC) codes. For details of the methodology, see the Overview of the OES Survey at [http://www.calmis.ca.gov/file/occup$/oeswages/oestechnotes.htm].

Table 106. Modesto MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results

Geography: Modesto MSA			County: Stanislaus		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
11-9111	**Medical and Health Services Managers**	**140**	**21.49**	**35.85**	**74,572**
29-0000	**Healthcare Practitioners and Technical Occupations**	**7,460**	**15.82**	**32.60**	**67,829**
29-1011	Chiropractors	[c]	25.55	28.76	59,829
29-1020	Dentists	150	48.97	57.89	120,406
29-1031	Dietitians and Nutritionists	60	18.63	25.26	52,548
29-1041	Optometrists	[c]	38.32	62.98	131,003
29-1051	Pharmacists	300	42.15	49.58	103,131
29-1062	Family and General Practitioners	[c]	>$70.01	85.05	176,917
29-1063	Internists, General	50	39.65	75.17	156,361
29-1064	Obstetricians and Gynecologists	[c]	>$70.01	[d]	[d]
29-1065	Pediatricians, General	30	40.79	58.72	122,133
29-1067	Surgeons	30	>$70.01	93.31	194,097
29-1069	Physicians and Surgeons, All Other	120	42.34	77.74	161,702
29-1071	Physician Assistants	[c]	22.03	50.33	104,681
29-1111	Registered Nurses	2,930	24.43	34.51	71,770
29-1122	Occupational Therapists	70	24.24	33.13	68,914
29-1123	Physical Therapists	130	28.09	38.78	80,676
29-1125	Recreational Therapists	[c]	15.74	21.53	44,774
29-1126	Respiratory Therapists	270	21.35	26.92	55,983

Geography: Modesto MSA			County: Stanislaus		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
29-1127	Speech-Language Pathologists	60	24.51	34.24	71,227
29-1131	Veterinarians	60	24.07	44.04	91,607
29-2011	Medical and Clinical Laboratory Technologists	80	25.07	30.81	64,082
29-2021	Dental Hygienists	270	47.33	50.24	104,506
29-2032	Diagnostic Medical Sonographers	60	24.11	28.65	59,579
29-2033	Nuclear Medicine Technologists	20	23.90	30.64	63,744
29-2034	Radiologic Technologists and Technicians	180	18.42	25.46	52,961
29-2051	Dietetic Technicians	30	9.02	12.55	26,116
29-2052	Pharmacy Technicians	310	12.19	14.94	31,083
29-2056	Veterinary Technologists and Technicians	130	9.63	11.58	24,084
29-2061	Licensed Practical and Licensed Vocational Nurses	750	16.96	20.13	41,885
29-2071	Medical Records and Health Information Technicians	200	8.03	12.12	25,221
29-2081	Opticians, Dispensing	40	11.62	15.03	31,261
29-9010	Occupational Health and Safety Specialists and Technicians	20	15.26	21.72	45,179
31-0000	**Healthcare Support Occupations**	**4,900**	**9.00**	**12.36**	**25,720**
31-1011	Home Health Aides	390	7.61	8.94	18,598
31-1012	Nursing Aides, Orderlies, and Attendants	1,500	9.03	11.10	23,089
31-2021	Physical Therapist Assistants	80	20.75	24.31	50,564

Geography: Modesto MSA			County: Stanislaus		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
31-2022	Physical Therapist Aides	60	8.03	10.82	22,503
31-9091	Dental Assistants	620	11.65	14.08	29,275
31-9092	Medical Assistants	1,330	10.56	13.33	27,724
31-9094	Medical Transcriptionists	130	9.80	14.79	30,755
31-9095	Pharmacy Aides	100	9.00	11.66	24,245
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	[c]	7.98	8.89	18,486
31-9099	Healthcare Support Workers, All Other	510	9.34	12.41	25,809

a. The mean of the first third of the wage distribution is provided as a proxy for entry-level wage.
b. For some occupations, workers may not work full-time all year-round. For these occupations it is not feasible to calculate an hourly wage.
c. An estimate of employment could not be provided.
d. An estimate of wage could not be provided.

Source: (Released April 2005) These survey data are from the 2003 Occupational Employment Statistics (OES) survey. The wages have all been updated to the **third quarter of 2004** by applying the U.S. Department of Labor's Employment Cost Index to the 2003 wages. Occupations are classified using the Standard Occupational Classification (SOC) codes. For details of the methodology, see the Overview of the OES Survey at [http://www.calmis.ca.gov/file/occup$/oeswages/oestechnotes.htm].

Table 107. Stockton-Lodi MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results

Geography: Stockton-Lodi MSA			County: San Joaquin		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
11-9111	**Medical and Health Services Managers**	**410**	**24.08**	**35.71**	**74,274**
29-0000	**Healthcare Practitioners and Technical Occupations**	**8,130**	**16.41**	**30.81**	**64,065**
29-1011	Chiropractors	30	26.94	61.70	128,345
29-1020	Dentists	120	43.14	71.32	148,339
29-1031	Dietitians and Nutritionists	140	21.26	25.07	52,142
29-1051	Pharmacists	490	27.47	42.38	88,167
29-1062	Family and General Practitioners	140	25.55	64.75	134,675
29-1063	Internists, General	[c]	60.50	75.48	156,998
29-1065	Pediatricians, General	[c]	44.93	53.95	112,219
29-1069	Physicians and Surgeons, All Other	[c]	>$70.01	[d]	[d]
29-1071	Physician Assistants	70	32.73	48.20	100,259
29-1111	Registered Nurses	3,350	24.37	30.63	63,718
29-1122	Occupational Therapists	50	23.17	29.49	61,346
29-1123	Physical Therapists	110	21.75	30.31	63,052
29-1125	Recreational Therapists	20	10.30	17.55	36,500
29-1126	Respiratory Therapists	200	18.94	22.13	46,015
29-1131	Veterinarians	[c]	31.59	36.50	75,914
29-2011	Medical and Clinical Laboratory Technologists	210	21.34	28.06	58,363
29-2012	Medical and Clinical Laboratory Technicians	160	11.16	16.27	33,845
29-2021	Dental Hygienists	[c]	23.26	33.82	70,332

Geography: Stockton-Lodi MSA			County: San Joaquin		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
29-2031	Cardiovascular Technologists and Technicians	60	12.92	19.72	41,021
29-2032	Diagnostic Medical Sonographers	30	21.43	26.30	54,710
29-2033	Nuclear Medicine Technologists	[c]	25.90	28.03	58,302
29-2034	Radiologic Technologists and Technicians	130	19.23	22.20	46,173
29-2041	Emergency Medical Technicians and Paramedics	70	7.88	10.32	21,464
29-2051	Dietetic Technicians	50	9.96	13.44	27,958
29-2052	Pharmacy Technicians	290	12.66	15.75	32,770
29-2055	Surgical Technologists	100	12.65	17.27	35,939
29-2056	Veterinary Technologists and Technicians	80	8.43	11.97	24,896
29-2061	Licensed Practical and Licensed Vocational Nurses	830	15.46	18.94	39,388
29-2071	Medical Records and Health Information Technicians	190	10.18	14.45	30,042
29-2081	Opticians, Dispensing	210	12.75	15.78	32,839
29-9010	Occupational Health and Safety Specialists and Technicians	50	16.22	25.35	52,724
29-9199	All Other Health Professionals and Technicians	290	13.16	18.05	37,540
31-0000	**Healthcare Support Occupations**	**5,440**	**8.50**	**10.96**	**22,791**
31-1011	Home Health Aides	1,020	7.69	9.57	19,898

Geography: Stockton-Lodi MSA			County: San Joaquin		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage[a]	Mean Hourly Wage	Mean Annual Wage
31-1012	Nursing Aides, Orderlies, and Attendants	1,960	8.73	10.41	21,661
31-2022	Physical Therapist Aides	50	8.27	10.69	22,237
31-9011	Massage Therapists	[c]	8.16	10.36	21,556
31-9091	Dental Assistants	580	9.21	10.92	22,716
31-9092	Medical Assistants	900	9.41	12.06	25,081
31-9093	Medical Equipment Preparers	70	10.51	13.83	28,764
31-9094	Medical Transcriptionists	120	13.90	16.70	34,740
31-9095	Pharmacy Aides	200	7.82	10.44	21,727
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	70	7.15	9.46	19,663
31-9099	Healthcare Support Workers, All Other	380	9.78	12.76	26,542

a. The mean of the first third of the wage distribution is provided as a proxy for entry-level wage.
b. For some occupations, workers may not work full-time all year-round. For these occupations it is not feasible to calculate an hourly wage.
c. An estimate of employment could not be provided.
d. An estimate of wage could not be provided.

Source: (Released April 2005) These survey data are from the 2003 Occupational Employment Statistics (OES) survey. The wages have all been updated to the **third quarter of 2004** by applying the U.S. Department of Labor's Employment Cost Index to the 2003 wages. Occupations are classified using the Standard Occupational Classification (SOC) codes. For details of the methodology, see the Overview of the OES Survey at [http://www.calmis.ca.gov/file/occup$/oeswages/oestechnotes.htm].

Table 108. Visalia-Tulare-Porterville MSA Occupational Employment (November 2003) and Wage (2004 - 3rd Quarter) Data Occupational Employment Statistics (OES) Survey Results

Geography: Visalia-Tulare-Porterville MSA			County: Tulare		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage [a]	Mean Hourly Wage	Mean Annual Wage
11-9111	**Medical and Health Services Managers**	**80**	**24.20**	**36.28**	**75,447**
29-0000	**Healthcare Practitioners and Technical Occupations**	**5,620**	**15.64**	**27.74**	**57,708**
29-1020	Dentists	90	37.31	57.84	120,294
29-1031	Dietitians and Nutritionists	50	17.30	23.85	49,610
29-1051	Pharmacists	180	38.19	50.45	104,955
29-1062	Family and General Practitioners	[c]	61.81	68.37	142,197
29-1063	Internists, General	20	53.17	66.19	137,670
29-1064	Obstetricians and Gynecologists	[c]	38.40	62.94	130,908
29-1065	Pediatricians, General	30	41.59	64.06	133,233
29-1069	Physicians and Surgeons, All Other	50	37.67	69.94	145,477
29-1071	Physician Assistants	50	36.16	40.55	84,352
29-1111	Registered Nurses	1,720	25.03	30.23	62,886
29-1121	Audiologists	[c]	25.86	28.31	58,878
29-1122	Occupational Therapists	50	20.61	27.49	57,181
29-1123	Physical Therapists	100	21.84	30.49	63,422
29-1125	Recreational Therapists	40	15.81	20.57	42,802
29-1126	Respiratory Therapists	120	16.60	20.90	43,477
29-1127	Speech-Language Pathologists	120	14.54	26.29	54,697
29-1131	Veterinarians	40	32.73	39.98	83,157

Geography: Visalia-Tulare-Porterville MSA			County: Tulare		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage [a]	Mean Hourly Wage	Mean Annual Wage
29-2011	Medical and Clinical Laboratory Technologists	70	24.75	26.97	56,097
29-2021	Dental Hygienists	140	31.87	34.56	71,890
29-2031	Cardiovascular Technologists and Technicians	20	15.43	20.55	42,762
29-2032	Diagnostic Medical Sonographers	[c]	19.33	24.99	51,966
29-2034	Radiologic Technologists and Technicians	100	17.18	22.58	46,970
29-2041	Emergency Medical Technicians and Paramedics	130	7.95	11.91	24,762
29-2052	Pharmacy Technicians	220	12.04	14.47	30,098
29-2055	Surgical Technologists	50	16.00	17.97	37,391
29-2056	Veterinary Technologists and Technicians	[c]	11.58	12.60	26,193
29-2061	Licensed Practical and Licensed Vocational Nurses	630	15.56	18.49	38,445
29-2071	Medical Records and Health Information Technicians	150	9.63	13.13	27,315
29-2081	Opticians, Dispensing	[c]	11.57	16.76	34,862
29-9199	All Other Health Professionals and Technicians	80	12.78	19.50	40,542
31-0000	**Healthcare Support Occupations**	**3,350**	**7.94**	**10.27**	**21,348**
31-1011	Home Health Aides	390	7.85	9.32	19,370
31-1012	Nursing Aides, Orderlies, and Attendants	1,310	7.85	9.44	19,636
31-1013	Psychiatric Aides	90	9.81	10.94	22,756
31-2021	Physical Therapist Assistants	[c]	18.89	20.93	43,541

Geography: Visalia-Tulare-Porterville MSA			County: Tulare		
SOC Code	Occupational Title	November 2003 Employment Estimates	2004 - 3rd Quarter Wages		
			Entry-Level Hourly Wage [a]	Mean Hourly Wage	Mean Annual Wage
31-2022	Physical Therapist Aides	90	8.99	10.57	21,990
31-9011	Massage Therapists	[c]	11.81	16.29	33,890
31-9091	Dental Assistants	330	9.47	11.89	24,725
31-9092	Medical Assistants	550	8.63	10.14	21,079
31-9094	Medical Transcriptionists	60	10.48	14.12	29,387
31-9095	Pharmacy Aides	50	9.30	11.23	23,363
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	80	8.94	10.02	20,829
31-9099	Healthcare Support Workers, All Other	320	7.92	10.91	22,684

a. The mean of the first third of the wage distribution is provided as a proxy for entry-level wage.
b. For some occupations, workers may not work full-time all year-round. For these occupations it is not feasible to calculate an hourly wage.
c. An estimate of employment could not be provided.
d. An estimate of wage could not be provided.

Source: (Released April 2005) These survey data are from the 2003 Occupational Employment Statistics (OES) survey. The wages have all been updated to the **third quarter of 2004** by applying the U.S. Department of Labor's Employment Cost Index to the 2003 wages. Occupations are classified using the Standard Occupational Classification (SOC) codes. For details of the methodology, see the Overview of the OES Survey at [http://www.calmis.ca.gov/file/occup$/oeswages/oestechnotes.htm].

In addition to the health care related employment discussed above, Fresno County, and to some extent, San Joaquin County, are also home to a burgeoning medical supply industry. This is also a regional resource that can contribute to an expanding a health care industrial cluster. As **Table 108** shows, while the number of firms is currently small, these firms did make over $36.8 million in sales and supported a $4.2 million annual payroll in 2002.

Table 109. Medical Instrument Supply/Equipment, 2002

SJV Counties	Number of Establishments	Sales ($1,000)	Annual Payroll ($1,000)
Fresno	13	36,856	4,210
Kern	0	0	0
Kings	0	0	0
Madera	0	0	0
Merced	0	0	0
San Joaquin	5	D	D
Stanislaus	0	0	0
Tulare	0	0	0
Total SJV Counties	**18**	**36,856**	**4,210**
Adjacent Counties			
Mariposa	0	0	0
Tuolumne	0	0	0
California and the United States			
California	1,060	10,534,288	1,284,922
United States*	7,800	79,754,180	7,560,852

Source: 2002 Economic Census, Wholesale Trade, U.S. Census Bureau.

D = Withheld to avoid disclosing data of individual companies; data are included in higher level totals.

* United States data are preliminary and will be superseded by data released in September 2005.

Chapter 5 — Selected Natural Resource and Environmental Issues in the SJV

Water Resources of the SJV[125]

The economic development of the SJV is tightly linked to the surface and ground water resources of the San Joaquin River and Tulare Basins.[126] The San Joaquin River drains the southern part of California's Great Central Valley — a large area (13,536[127] to 32,000[128] square miles, depending on which tributaries are included). The San Joaquin River is one of the state's longest rivers, extending 300 miles[129] north from its beginnings in the Sierra Nevada Mountain range to its delta confluence with the Sacramento River and San Francisco Bay (Bay-Delta). The basin includes several large rivers originating in the southern portion of the Sierra Nevada mountain range on the eastern edge of the SJV and smaller, east-flowing streams from the Diablo Mountains to the west. The largest direct tributaries to the San Joaquin include (from north to south) the Stanislaus, Tuolumne, and Merced Rivers. The San Joaquin hydrologic region appears to extend slightly north of the eight- county area that is the subject of this report and it does not include the Tulare basin, which is included in the eight-county area.[130] Major rivers draining into the Tulare basin include the Kings, Kaweah, Tule, and Kern Rivers. Today, waters from the Tulare basin only flow into the San Joaquin River during exceptionally wet periods.[131] All of the rivers named above originate in the Sierra-Nevada, and all have at least one dam or impoundment structure.[132]

Precipitation varies significantly in the SJV from the northern part of the SJV to the southern part, and from west to east as one comes out of the SJV and enters its eastern barrier, the Sierra Nevada Mountains. The average annual precipitation in

---

[125] Section written by Betsy Cody, Specialist in Natural Resource Policy, Resources, Science, and Industry Division.

[126] Groundwater resources are not discussed in this report; however, groundwater withdrawals make up a significant portion of water use in the SJV, particularly during dry or drought years. The California Department of Water Resources estimates groundwater supplied 33% of the San Joaquin hydrologic region's water supplies in 2000 (an average water year).

[127] Frits van der Leeden, Fred L. Troise, and David Keith Todd, *The Water Encyclopedia*, Second Ed. (Chelsea, Michigan: Lewis Publishers, 1990), p. 133. Hereafter referred to as Water Encyclopedia.

[128] California Department of Water Resources, *California Water Plan Update 2005*, public review draft, p. 7-1, available August 3, 2005 at [http://www.waterplan.water.ca.gov/cwpu2005/index.cfm]. Hereafter referred to as the California Water Plan.

[129] California Water Plan, p. 7-1.

[130] California Water Plan, p. 7-1.

[131] Arthur C. Benke, and Colbert F. Cushing, *Rivers of North America* (San Diego, CA: Elsevier Academic Press), p. 553. Hereafter referred to as *Rivers of North America.*

[132] *Rivers of North America* p. 555.

the Sierra Nevada is approximately 35 inches; however, precipitation in the SJV itself ranges from 22.5 inches in the northern portions and approximately 11.1 inches in the southern portion, to 6.5 inches near the southwestern corner of the hydrologic region.[133] The San Joaquin River's natural flow is highly variable, depending on snowfall in the northeastern mountain ranges and rainfall in the southeastern Sierra Nevada foothills; however, numerous flood control and water supply dams and reservoirs on San Joaquin and Tulare Basin tributaries regulate the river's flow. Even so, the observed discharge of the river ranged from a low of 241 cubic feet per second (cfs) to 99,900 cfs in the period from 1930 to 1983; the average discharge was 4,783 cfs.[134] The SJV once supported vast Tule marshes, riparian corridors, and other wetlands; however, development of the area largely for farming, and the taming of rivers, has changed the ecological character of the SJV dramatically. Not only has the land base been transformed, but the hydrology of the river as well: "It is difficult to imagine a river that is more hydrologically modified by humans than the San Joaquin... The basin has experienced a long history of flow and capture and diversion; almost all the surface-water flow of the basin had been diverted by as early as 1910."[135] Today, most of the river's supply is diverted for agricultural and municipal and industrial (M&I) uses. Consequently, the San Joaquin River has experienced a significant decline in fish populations and water quality The latter topic is discussed below.

In addition to captured and stored surface waters, the SJV benefits from significant groundwater resources, and canals and aqueducts that bring water south from the San Francisco Bay/Sacramento and San Joaquin River's Delta. The latter facilities are discussed below.

Water Supply Infrastructure. Residents of California, and of the SJV in particular, benefit from significant federal and state investment in water supply infrastructure. Federal involvement has largely been in the investment in construction of dams and related facilities to provide water for irrigation under the Reclamation Act of 1902, as amended.[136] Under this authority, and other, specific project legislation (together known as Reclamation Law), the Bureau of Reclamation in the Department of the Interior constructed the Central Valley Project (CVP).[137] The CVP provides water to farmers in 35 counties throughout the Central Valley of California — from the upper reaches of the Sacramento Valley in the north, south to the Kern River area near Bakersfield. Some CVP water is also supplied to local

---

[133] California Water Plan, p. 7-1.

[134] Water Encyclopedia, p. 133.

[135] *Rivers of North America*, p. 555.

[136] The U.S. Army Corps of Engineers also has several facilities in the SJV, some of which may be used to supply water to irrigators and M&I users; however, the Corps facilities are typically built to provide flood control benefits, and as with Reclamation, M&I use is an incidental project purpose.

[137] The CVP was initially authorized by a finding of feasibility by the Secretary of the Interior under then-existing Reclamation Law; funds were first provided under the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). Many of the CVP units were authorized under separate project- (unit-) specific statutes.

jurisdictions for M&I use; however, this use is typically incidental to the original purposes for which the Reclamation facilities were constructed (i.e., irrigation supply, hydro power production, flood control).

To date, the federal government has invested a total of approximately $3.36 billion in the CVP. Most of this investment (84%) is to be repaid via long-term water service contracts.[138] The remaining 16% is considered nonreimbursable and will not be repaid. Nonreimbursable project costs generally include capital costs attributable to flood control and other public purposes, sometimes including fish and wildlife, and other environmental costs. Slightly more than half of the $2.83 billion to be repaid by 2030 is allocated to irrigation contractors for repayment, and approximately 35% is to be repaid by M&I and commercial contractors. The remaining costs are allocated to deferred use and other purposes. As of September 2002, irrigators had repaid approximately 11% of costs allocated to irrigation. M&I contractors had repaid 41%. Because of Reclamation's past CVP fixed repayment rates, significant portions of the repayment did not occur as originally scheduled, and some contractors were incurring operations and maintenance cost deficits. This situation was addressed in the mid-1990s; however, most of the project capital costs remain to be repaid, and under current law must be repaid by 2030.

CVP water deliveries typically range from six to seven million acre-feet (maf) annually; it appears approximately 48% of these deliveries are made to contractors in the SJV; approximately 1.9 maf are imported via the Bay-Delta and CVP annually, while another 1.5 maf are diverted from the San Joaquin River via the Friant-Kern and Madera Canals.[139] In total, approximately 44% of the San Joaquin hydrologic region's developed supply came from local surface sources, 23% from imported surface supplies (CVP and the State Water Project), and 33% from groundwater sources in 2000 (an average water year).

The federal water supply infrastructure in the SJV has been the topic of many controversies. Because water supplied by the federal facilities is sometimes used to raise cotton and other commodity crops, environmental and taxpayer groups have accused SJV growers of "double dipping" in federal programs with "subsidies" for irrigation water as well as for agricultural commodities. The most recent controversy stems from an August, 2005 report of the Environmental Working Group.[140] While some farmers maintain they are paying "full cost" for their water, full cost rates as defined by reclamation law were not required until 1982 and under the prior law, Bureau of Reclamation irrigation contract rates did not, and do not (for contractors opting to remain under prior law), include interest. On the other hand, farmers argue that most of that "interest subsidy" has been capitalized in land values, and only the original landowners benefitted directly from the interest subsidy. Regardless of the nature of the subsidy and the extent to which it exists, project water rates appear to

---

[138] While the CVP contains many divisions and subunits, its operation is interconnected, thus making it difficult to discuss issues associated with certain subunits without considering the system as a whole.

[139] California Water Plan, p. 7-3.

[140] Environmental Working Group, *Double Dippers, How Big Ag Taps Into Taxpayers' Pockets — Twice,* accessed August 4, 2005, at [http://www.ewg.org/reports/doubledippers/].

be well below the market value for water in the Central Valley as measured by the value of recent water transfers.[141]

The operation of the CVP, and particularly projects in the SJV, such as Friant Dam, have also been criticized for their impact on fisheries and water quality in the Bay-Delta and in the San Joaquin River itself. Project operations have been the subject of numerous lawsuits and ultimately resulted in the development of the CALFED program, to address the water quality, water supply reliability, and ecosystem needs of the California Bay-Delta and its major tributaries. CALFED was started as a way to forestall what many believed could have resulted in significantly reduced water supplies due to possible non-compliance of the CVP and the parallel State Water Project (SWP) with Clean Water Act and Endangered Species Act (ESA) requirements. Implementation of these laws combined with the Central Valley Project Improvement Act (Title 34, P.L.102-575) (which included a dedication of 0.8 maf of CVP water supplies to fish and wildlife) have resulted in reduced water deliveries to agricultural contractors in some cases and remain an ongoing tension for water management and water supply reliability in the SJV.

Numerous water supply issues have arisen in the SJV. Growing urbanization and population increases have resulted in new demand for water for M&I purposes. However, even though the SJV enjoys significant natural and imported water supplies, these supplies are already allocated, and in some cases, are over-allocated, making it difficult to accommodate new demands. Further, this over-allocation (often via diversions from the San Joaquin River) has resulted in reduced flows that have contributed to the decline of natural fish species in the San Joaquin River and the San Joaquin/Sacramento Bay-Delta, some of which have been listed as threatened or endangered under the federal ESA.[142] To meet environmental requirements, some water has been dedicated to environmental purposes that were not addressed when the CVP was constructed. Other water demands have been met with voluntary water transfers from agricultural to urban uses.

The extent to which water delivered via federal facilities is available to be used, or chosen to be used, by agriculture is an issue of utmost concern in the SJV, and critical to the long-term development and vision for the Valley. Generally speaking, water allocation decisions (water rights decisions) are made by the state. However, significant quantities of water are governed by federal contracts, and deliveries in certain circumstances might be reduced in cases where project operations must meet certain federal environmental regulations (e.g., reductions in Delta outflows during certain periods). The contractual obligations of the federal government to deliver water must be considered in contemplating any changes in project water use.

---

[141] While water transfer transactions may not operate in a true "free-market," they do give some indication of buyer's willingness-to-pay for water from existing sources.

[142] See generally: U.S. District Court, Eastern Division of California, decision of August 27, 2004 in *Natural Resources Defense Council, et al. v. Roger Patterson, etc., et al*. (No. Civ. S-88-1658 LKK). This case discusses the Bureau of Reclamation's operation of Friant Dam and its effects on fish species and habitat below the dam, including the extirpation of spring chinook salmon in the late 1940s when river flows from Friant Dam were halted in most years.

Further, the state's ability to reallocate water without compensating water rights holders has been called into question.[143] Consequently, any change in overall water use in the short term (at least as a practical matter) is likely to occur only between willing sellers and willing buyers, except for cases where project operations are found to violate state and/or federal law. How public (and private) entities plan for future growth and development when water rights are already allocated and owned by hundreds if not thousands of public and private parties is perhaps one of the most difficult challenges facing the region.

Water Quality Issues in the SJV[144]

Overview. The SJV has experienced several significant environmental and natural resource challenges over the past two decades, most notably issues surrounding water supply and quality, air quality, and growth and urban sprawl. While significant progress has been achieved in addressing some of these issues, the SJV continues to face major environmental issues that are closely related to existing economic sectors and can affect economic development planning for the future. The geography and climate of the SJV make the basin vulnerable to air pollution from Los Angeles and the area's rapid growth over the past decade has increased air pollution problems. Particulate pollution is a significant concern, with some SJV cities among the worst in the United States.

Irrigated Agriculture and Water Quality. In 1991, the U.S. Geological Survey (USGS) began an assessment of trends in quality of the nation's water resources through a series of intensive sampling and analytic projects within major river basins and aquifer systems. One of the studied systems is the San Joaquin-Tulare Basins, comprising the eight-county area discussed in this report. The SJV produces about 5% of the total value of agricultural production in the United States. The valley's highly productive agricultural economy results from factors that include abundant water and the long growing season. Consequently, agriculture is both the major user of the region's water resources (90% of the nearly 17 million acre-feet per year in offstream water use in this area is for irrigated agriculture) and the major influence on the quality of those resources.

A number of regulated point sources discharge treated wastewater into the region's surface waters (including municipal sewage treatment plants, and food processing, manufacturing, and oil and gas facilities). However, changes in water quality in the San Joaquin-Tulare Basins are primarily due to the large amount of irrigated agriculture, which affects the quality of both surface and groundwater in the valley, according to USGS.[145] Large quantities of agricultural chemicals are used.

---

[143] See, for example, *Tulare Lake Basin Water Storage District v. United States* (49 Fed. Cl. 313 (2001). Subsequent opinions addressed the amount of compensation owed, 59 Fed. Cl. 246 (2003), and the interest rates that should be applied, 61 Fed. Cl. 624 (2004).

[144] Section written by Claudia Copeland, Specialist in Environmental Policy, Resources, Science, and Industry Division.

[145] Irrigation return water may reach surface water as direct runoff, as water from subsurface (continued...)

USGS reported that agriculture in the study area used 597 million pounds active ingredient of nitrogen and phosphorus fertilizers in 1990, and 79 million pounds active ingredient of pesticides in 1991. During the subsequent decade (1991 to 1999), pesticide use reportedly increased 43% to 114 million pounds In addition, the livestock industry contributed 318 million pounds active ingredient of nitrogen and phosphorus from manure in 1987 — an amount that has undoubtedly increased as a result of more intensive livestock operations in the valley. For example, from 1987 to 1996, the number of dairy cattle in the SJV increased 46% from 582,000 to 850,000.[146]

Several water quality issues are of concern in the valley region.[147]

Increased salinity in the lower San Joaquin River. This issue is considered by most agencies to be the most serious water quality issue in the area. The problem results from an increase in the volume of saline water from agricultural areas and a decrease in the volume of low-salinity runoff from the Sierra Nevada into the river.

Elevated concentrations of naturally occurring trace elements, including arsenic, boron, molybdenum, chromium, and selenium. Accumulation of trace elements including selenium and mercury have been identified in waterfowl and aquatic organisms.

Increased pesticide contamination of both ground and surface water. USGS sampling detected 49 pesticides in the San Joaquin River and its tributaries, some at concentrations high enough to adversely impact aquatic life. USGS also found long-banned organochlorine insecticides, such as DDT, in river and stream sediments and biota.

Increased nitrate concentrations in groundwater. Fertilizers, manure from livestock, and septic systems throughout the valley are sources of nitrate in ground water. USGS found nitrates at levels that violated drinking water standards in 25% of residential wells that were tested. At high concentrations, nitrates in drinking water can cause a fatal lack of blood oxygen in infants called methemoglobinemia, or blue baby syndrome.[148]

---

[145] (...continued)
drainage systems installed to control the water table, or as ground water discharged through riverbeds.

[146] Gronberg, J.M., C.R. Kratzer, K.R. Burow, J.L. Domagalski, S.P. Phillips. "Water-Quality Assessment of the San Joaquin-Tulare Basins — Entering a New Decade." U.S. Geological Service. Fact Sheet 2004-3012, April 2004.

[147] U.S. Geological Survey. "Environmental Setting of the San Joaquin-Tulare Basins, California." Water-Resources Investigations Report 97-4205, National Water-Quality Assessment Program. 1998. Pp. 39-40.

[148] Ibid.

> Reduced concentrations of dissolved oxygen in the San Joaquin River attributed to discharge of wastewater from municipal sewage treatment plants. Low dissolved oxygen is detrimental to fisheries and other aquatic resources.

In addition to impacts of degraded water quality, waterfowl and aquatic resources are affected by reduced habitat, including wetlands. As agricultural activities expanded in the valley, wetlands and riparian forests were drained, cleared, and converted to agricultural land. The remnant wetlands are less than 8% of the wetland acreage before settlement of the SJV in the 19th century. Wetland areas now include public lands managed by state and federal agencies, as well as privately-owned duck clubs.

The water quality of the San Joaquin River is of critical interest because it flows to the Sacramento-San Joaquin Delta. Both the Delta-Mendota Canal, which supplies irrigation water to farms in the western SJV, and the California Aqueduct, which supplies part of the drinking water for 15 million people in southern California, originate in the delta.

Actions to Address Impaired Waters. The federal Clean Water Act (CWA) takes a cooperative federalism approach in which states that have been approved by the federal government to administer their own CWA programs, including California, take the lead in keeping their own waters clean, and the federal government serves in a strong supervisory capacity to ensure the job gets done properly. Section 303 of the act requires states to establish water quality standards for the waters within their boundaries that are subject to CWA jurisdiction. Water quality standards consist of designated beneficial uses for a waterbody (for example, recreation, drinking water, industrial use) and criteria specifying how clean it must be to support the designated use. While water quality standards by themselves do not clean up any water, they are a necessary part of the process. Under Section 303(d), waters that fail to meet standards after application of appropriate pollution control technology are identified as impaired and are prioritized for cleanup.

The Total Maximum Daily Load (TMDL) provisions in Section 303(d) of the act provide the process for states to analyze and quantify how much additional pollutant control is needed and how to allocate additional controls among the various dischargers to a waterbody. A TMDL is a quantification of pollutant loading that a waterway can tolerate without violating water quality standards, as well as reductions needed to achieve standards. Under the law and Environmental Protection Agency (EPA) regulations, carrying out the TMDL requirements begins with states identifying waters that have not yet achieved applicable standards. States are required to identify the pollutants causing violations of applicable standards and include a priority ranking of TMDLs to be developed for waters identified in the list of impaired waters. These lists are submitted to EPA for review and approval. Thereafter, the state is to establish TMDLs for each pollutant contributing to a standards violation in the waterbodies identified in the 303(d) list, in accordance with the approved priority ranking.

The TMDL consists of wasteload allocations (WLAs, the portion of the waterbody's loading capacity allocated to industrial and municipal point sources of

pollution) and load allocations (LAs, the portion attributed to nonpoint sources of pollution — rainfall or snowmelt runoff from diffuse sources such as farms, forests, or urban areas — or natural background sources), plus a margin of safety, necessary to achieve and maintain the applicable standards. The TMDL is not a self-enforcing document. Once WLAs/LAs are quantified, states are responsible for translating allocations among point sources (through more stringent controls incorporated into discharge permits) and nonpoint sources. For waters impaired by nonpoint source runoff, because there are no federal controls over these sources under the Clean Water Act, the primary implementation measures are state-run nonpoint source management programs coupled with state, local, and federal land management programs and authorities and financial assistance programs. For example, farmers and ranchers may be asked to use alternative methods in their operations to prevent fertilizers and pesticides from reaching streams. States may require cities to manage or control runoff from streets. The TMDL process allows for states to make point source/nonpoint source control tradeoffs. EPA may approve or disapprove TMDLs developed by the state; if EPA disapproves a TMDL, it is then required to establish a TMDL.

In California, the authority and responsibility to develop TMDLs rests with the Regional Water Quality Control Boards (RWQCB). Through the Regional Boards, the state has identified and listed 687 impaired water segments in the state; since many waters are impaired by more than a single pollutant, the list identified 1,774 total impairments for waters of the state. The Central Valley Regional Water Quality Control Board, with jurisdiction over the entire Sacramento, San Joaquin River, and Tulare Lake Basins stretching from the Oregon-California border to the Tehachapi Mountains in the south, is responsible for developing and implementing TMDLs to address these impairments. Within each of the eight counties discussed in this report, the Central Valley RWQCB has identified impairments from a number of pollutants, including pesticides, trace elements, salinity, bacteria, and pathogens, and has established a phased schedule for the several required TMDLs. One of the listed waters is the San Joaquin River, and according to the state's analysis, it is impaired for multiple pollutants, including salinity, boron, selenium, the pesticides diazinon and chlorpyrifos, other pesticides, and other substances of unknown toxicity. The Central Valley RWQCB is currently developing TMDLs for several high priority San Joaquin River impairments (selenium, organophosphorus pesticides such as diazinon, low dissolved oxygen, and mercury), a process likely to take 10 years or more.[149] TMDLs for other contaminants and for medium and low priority waters will be developed thereafter. Once completed and approved by EPA, the TMDLs will be incorporated in the water quality control plans (Basin Plans) which contain California's administrative policies and procedures for protecting state waters. Implementation of TMDLs could have implications for point source and nonpoint source dischargers throughout the watersheds of the impaired waters, although the precise requirements cannot be easily foretold.

---

[149] For information, see California Environmental Protection Agency, Central Valley Regional Water Quality Control Board. "Impaired Waterbodies 303(d) List and TMDLs." [http://www.waterboards.ca.gov/centralvalley/programs/tmdl/index.htm]

A TMDL Example. The complexity of the TMDL process is illustrated in the Lower San Joaquin River Salinity and Boron TMDL, adopted by the regional board in September 2004. The TMDL describes the magnitude and location of the sources of salt and boron loading to the river and divides the watershed into seven component sub-areas to identify differences between geographic areas.

> Approximately 67 percent of the LSJR's total salt load and 85 percent of the boron load originates from the west side of the San Joaquin River (Grasslands and Northwest Side Sub-areas). Agricultural drainage, discharge from managed wetlands, and groundwater accretions are the principle (sic) sources of salt and boron loading to the river. Additionally, large-scale out-of-basin water transfers have reduced the assimilative capacity of the river, thereby exacerbating the salt and boron water quality problems. At the same time, imported irrigation water from the Delta has increased salt loading to the basin. Salts in supply water from the Delta account for almost half of the LSJR's mean annual salt load.[150]

To address these problems, the TMDL proposes salt waste load reductions for the City of Turlock and the City of Modesto wastewater treatment plants, the two point sources that discharge directly to the waterbody. The analysis considers the many complexities of sources in the watershed, with water being both imported and exported, as well as the need to account for background salt loading and groundwater contributions, plus accounting for a consumptive use allocation due to evapoconcentration of salts in supply water. The TMDL states that the river's salinity problem is not conducive to establishing a simple fixed load allocation for nonpoint sources, and the plan would divide required allocations among agricultural and other sources in the seven geographic sub-areas (load allocations to the sub-areas are proportional to the quantity of nonpoint source land use, which is the sum of agricultural lands and managed wetlands, within the sub-area).

The allocation includes giving responsibility to the U.S. Bureau of Reclamation to reduce salt loadings in CVP water that is delivered to the project area of the TMDL, because the CVP has had a large impact on flow and salt loading and contributed to degradation of the LJSR's water quality. Wetland discharges from sources owned and managed by a number of entities in two sub-areas (Grasslands and San Joaquin River upstream of Salt Slough) also are identified as one of the sources of salinity problems in the watershed and consequently are included in the load reductions to implement the TMDL. Load allocations to nonpoint sources vary by month and water-year type (higher during wet months and years), since they are dependent on background levels, groundwater loads, and wasteload allocations to point sources. These complexities generated considerable controversy and debate during review of the plan, regarding a large number of technical issues, economics, and timeline (the TMDL proposes an 8-20 year schedule for compliance with load allocations).

---

[150] Staff Report of the California Environmental Protection Agency, Regional Water Quality Control Board, Central Valley Region. "Total Maximum Daily Load for Salinity and Boron in the Lower San Joaquin River." January 2002. Text available at [http://www.swrcb.ca.gov/rwqcb5/programs/tmdl/salt_boron/SaltandBoronTMDL.Jan2002.pdf]]

Financial Assistance. Some financial assistance for TMDL development and implementation is available, but most is not specifically targeted to TMDLs. Costs incurred by states to develop TMDLs are one type of activity for which states may utilize grant funds provided under CWA Section 106. These grants help states in implementing numerous CWA programs, including standard setting, water quality planning, monitoring, and enforcement. Funding for sources to implement TMDLs is limited. Low-interest loans under the federal Clean Water Act State Revolving Fund program may be used to construct municipal sewage treatment plants and implement nonpoint source management activities under an approved state plan. TMDL projects could be eligible, if included in such a plan. Grants under CWA Section 319 assist states in implementing EPA-approved nonpoint source management programs; these funds are used specifically for on-the-ground projects, not state administrative costs. Since FY2001, $100 million of Section 319 grant funds (which total $207 million in FY2005, for example) is being devoted annually to implementing nonpoint source TMDLs. Grants provided under the federal Environmental Quality Incentives Program (EQIP), administered by the USDA Natural Resource Conservation Service, can be used for conservation and environmental management projects, which may include projects to implement TMDLs.

Managing Manure at Concentrated Animal Feeding Operations

According to EPA, the release of waste from animal feeding operations to surface water, groundwater, soil, and air is associated with a range of human health and ecological impacts and contributes to degradation of the nation's surface waters. The primary pollutants associated with animal wastes are nutrients (particularly nitrogen and phosphorus), organic matter, solids, pathogens, and odorous/volatile compounds. Animal waste also contains salts and trace elements, and to a lesser extent, antibiotics, pesticides, and hormones. Pollutants in animal waste can impact waters through several possible pathways, including surface runoff and erosion, direct discharges to surface waters, spills and other dry-weather discharges, leaching into soil and groundwater, and releases to air (including subsequent deposition back to land and surface waters).

Recent changes to federal and California laws and regulations are changing the way that large-scale livestock operations are regulated. These changes are of interest in the Central Valley because of the importance of livestock operations to the region's agricultural economy. In February 2003, EPA adopted final regulations for Concentrated Animal Feeding Operations (CAFOs), which now require all large animal feeding operations to apply for a Clean Water Act discharge permit.[151] The rules established performance expectations for existing and new sources to ensure they store manure and wastewater properly and utilize proper land applications at CAFOs. Under the rules, which apply to about 15,500 livestock operations across

---

[151] U.S. Environmental Protection Agency. "National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs); Final Rule." 68 *Federal Register* 7175-7274, Feb. 12, 2003.

the country, all large CAFOs are required to apply for a permit, submit an annual report, and develop and follow a plan for handling manure and wastewater. In addition, the rules also control land application of manure and wastewater.

In California, implementation of the EPA CAFO permit requirements is the responsibility of the Regional Water Quality Control Boards. The Central Valley RWQCB has initially focused on procedures to regulate dairies, which represent over 90% of the confined animal facilities in the region There are approximately 1,650 dairy operations within the region, the majority of them located in San Joaquin, Stanislaus, Merced, and Tulare counties.[152] Of these, approximately 1,000 are of sufficient size to meet the federal definition of a large CAFO, based on a threshold of 700 mature dairy cows, thus requiring them to seek a Clean Water Act permit. Historically, most dairies in the region operated under a waiver of waste discharge requirements; this waiver expired in January 2003. The Central Valley RWQCB is developing a general permit to implement both the federal rules and state regulations which prescribe minimum standards for discharges of animal waste at confined animal facilities to protect both surface water and groundwater, including monitoring requirements.[153] The draft permit has been controversial, and dairy farmers believe that the requirements will be too costly to implement, putting their operations at a competitive disadvantage compared with dairies in other states. According to an analysis by Western United Dairymen (WUD), the cost to comply with the permits will be $40,000 initially and $30,000 annually. Staff of the regional board acknowledge that the WUD's overall estimate appears reasonable. Costs would be phased in over two to four years, depending on the herd size, and roughly half of the costs are associated with installation of groundwater monitoring wells, which initially would apply only to dairies with 1,300 or more mature dairy cows.

Funding Sources for CAFOs. There are several federal, state, and local programs that can provide financial assistance to dairymen conducting projects to address environmental concerns. These include:

> The federal Environmental Quality Incentives Program (EQIP). EQIP provides technical assistance, cost sharing, and incentive payments to assist livestock and crop producers with conservation and environmental improvements using land management and structural practices, such as site-specific nutrient management or animal waste management facilities. Sixty percent of the available funding is to be targeted at practices relating to livestock production.

---

[152] Approximately 98% of the California dairy facilities impacted by the CAFO rules are located in the Central Valley and Santa Ana Regions. In addition, approximately 250 dairies in the region are subject to stormwater runoff permit rules issued by EPA in 1990. The Central Valley RWQCB issued a stormwater general permit covering these facilities as part of a general industrial storm water permit in 1997.

[153] Central Valley Regional Water Quality Control Board. "Administrative Draft National Pollutant Discharge Elimination System General Permit and Waste Discharge Requirements General Order for Existing Concentrated Animal Feeding Operations (Milk Cow Dairies)." September 2004. For information, see: [http://www.waterboards.ca.gov/centralvalley/available_documents/index.html#confined].

EQIP funds can be used to cover 75% of the cost of measures to control manure runoff, and, under the 2002 farm bill amendments (P.L. 107-171), livestock operators of all sizes including large CAFOs are eligible to receive funding.

The federal Clean Water Act State Revolving Fund. This is a low-interest program funded by federal grants and state bond funds which provides loans for projects that address point and nonpoint sources of water pollution.

USDA, EPA, and federal agencies such as the Small Business Administration (SBA) administer a number of other assistance programs, which EPA summarized in a 2002 report.[154] The SBA, for example, administers a pollution control loan program that can be used by small and large animal feeding operations that are small businesses.

The California Dairy Water Quality Improvement Grant Program will provide $5 million from Proposition 50 to fund regional and on-farm dairy projects to address water quality impacts from dairies.

The California County EQIP Program provides funds to counties allowing local concerns to be addressed according to local priorities and ranking criteria. All of the Central Valley counties discussed in this report have identified CAFOs as a concern in their EQIP program description.

Compliance assistance also is available from a number of sources, including the University of California Cooperative Extension, USDA Natural Resource Conservation Service, and California Dairy Quality Assurance Program. The latter is a voluntary partnership among federal and state agencies, academia, and the dairy industry to assist dairy producers in meeting regulations relating to manure and nutrient management.

[154] U.S. Environmental Protection Agency. "Financial Assistance Summaries for AFOs." 2002. Available at [http://www.epa.gov/npdes/pubs/financial_assistance_summaries.pdf].

Air Quality Issues in the SJV[155]

Ozone. The SJV[156] has some of the worst air quality in the nation. The district is one of only two in the United States classified by EPA as "extreme nonattainment" for ozone — the other being Los Angeles. In 2004, the area failed to meet the 8-hour standard for ozone on 104 days (versus 88 days in L.A.).

Ozone is regulated primarily because of its health effects. It aggravates lung conditions such as asthma, and recent research has linked it to increases in mortality. For each 10 part per billion (ppb) increase in ozone, mortality increases by 0.52% in the following week, according to a recent study of 95 U.S. cities. While seemingly small, a 10 ppb increase in ozone would cause an estimated 3,767 annual premature deaths in the cities studied.[157] The premature death rate from ozone in the SJV would be expected to exceed that in most U.S. cities, because the ozone concentrations are substantially higher in the Valley, frequently reaching levels that are 30-60 ppb above EPA's standard.[158]

Ozone also causes crop damage, by interfering with photosynthesis. According to the SJV Air Pollution Control District (SJVAPCD), "Studies have shown reductions of up to 20 percent in yields of grapes, cotton, oranges, alfalfa, and tomatoes due to ozone exposure."[159] The California Air Resources Board estimated in 2003 that agricultural crop losses exceeding $150 million in the SJV due to ozone exposure.[160]

In many respects, the Valley's ozone problem is similar to that in Los Angeles. Ozone forms in the atmosphere from chemical reactions involving volatile organic compounds and nitrogen oxides. Warm sunny days, abundant both in L.A. and the Valley, contribute to ozone formation. Once formed, ozone remains trapped in the Valley and in L.A. by the surrounding mountains. As in Los Angeles, the Valley's

---

[155] Section written by James McCarthy, Specialist in Environmental Policy, Resources, Science, and Industry Division.

[156] The SJV Air Pollution Control District (SJVAPCD), which is the source of many of the data presented in this section, corresponds to the SJV area identified elsewhere in this report. It includes the counties of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare and the western and central portions of Kern County.

[157] See "Researchers Link Short-Term Spike in Ozone to Thousands of Deaths in United States," *Daily Environment Report*, November 18, 2004, p. A-7. The article reports on research covering 95 U.S. cities over a 14-year period. Four of the 95 cities (Stockton, Modesto, Fresno, and Bakersfield) were in the SJV. The research ("Ozone and Sort-term Mortality in 95 U.S. Urban Communities, 1987-2000," by Michelle L. Bell, et al.) appeared in *JAMA*, the Journal of the American Medical Association, November 17, 2004, pp. 2372-2378.

[158] David L. Crow, "Trends in Ozone Air Quality by County for the SJV Air Basin," SJVAPCD Board Briefing Report, April 15, 2003, pp. B-3 through B-10, available at [http://www.valleyair.org/Air_Quality_Plans/docs/O3AQReportBrdBried%20report.pdf].

[159] Ibid., p. 6.

[160] Ibid.

main local source of pollution is a category labeled "mobile sources" — principally cars and trucks. Mobile sources accounted for about 55 percent of the emissions of ozone-forming gases in the SJV in 2004, according to the SJVAPCD.[161]

Compared to Los Angeles (and most U.S. areas), the Valley has made less progress in improving its air quality. In many of the eight SJV counties, concentrations of ozone and the number of days on which those concentrations exceed air quality standards are little changed from the early 1980s.[162] In Los Angeles, by contrast, concentrations of ozone and the number of days on which the standard is exceeded have both been cut in half since 1980.[163] In part, the Valley's lack of progress may be due to the importance of air pollutants transported into it from outside — principally from the Bay area. Another factor may be the more significant role of agriculture as an emissions source in the Valley. Agricultural sources of emissions have been subject to few air quality regulations — until the last year, they were exempt from permit requirements under the state's air pollution control laws.

Under EPA regulations promulgated in the spring of 2004, the SJV has until June 2013 to achieve compliance with the ozone standard. Doing so will involve reductions in emissions from numerous sources, including cars and trucks, industry, and agriculture. To attain the standard, the Valley is expected to need reductions of at least 342 tons per day of volatile organic compounds (VOCs) and nitrogen oxides (NOx).[164]

Most of these reductions will come from the mobile source category. State and federal regulations on vehicle emissions and fuels will reduce VOCs and NOx by over 225 tons per day between 2000 and 2010.[165] Nineteen other statewide pollution control measures (many of them addressing the evaporation of fuel from storage and distribution systems and emissions from non-road engines) are expected to contribute an additional 35 tons per day of reductions.[166] For the remainder, the Valley's air pollution control district plans to implement controls on concentrated animal feeding operations (CAFOs) — most likely controls on emissions from feedlots and waste treatment lagoons — by January 1, 2007. A reduction of 15.8 tons of VOCs per day

---

[161] SJVAPCD, *Extreme Ozone Attainment Demonstration Plan*, October 8, 2004, p. 4-53. Available at [http://www.valleyair.org/Air_Quality_Plans/AQ_plans_Ozone_Final.htm].

[162] This is true for Fresno, Kern, Kings, Madera, Stanislaus, and Tulare Counties. Merced County has only measured ozone since 1991, but in that period, it too shows little or no improvement. Only San Joaquin County's ozone levels appear to have improved. See David L. Crow, "Trends in Ozone...," previously cited,.

[163] For L.A. data, see South Coast Air Quality Management District, "Historic Ozone Air Quality Trends," at [http://www.aqmd.gov/smog/o3trend.html].

[164] The 342 ton figure is actually the amount that pollution will need to be reduced in order to meet EPA's old 1-hour standard for ozone. See *Extreme Ozone Attainment Demonstration Plan*, previously cited. A plan to meet the 8-hour standard has not been developed yet.

[165] SJVAPCD, *Extreme Ozone Attainment Demonstration Plan*, previously cited, p. 4-53.

[166] Ibid., pp. 4-53 through 4-55.

(about 25% of the projected uncontrolled emissions from CAFOs) is anticipated. Other agricultural sources projected for new controls include stationary internal combustion engines (such as those used in agricultural irrigation), open burning, wine fermentation and storage, and commercial dryers (including those used to remove moisture from fruits, nuts, vegetables, and cotton).[167]

Particulate Matter (PM_{10} and $PM_{2.5}$). EPA has also designated the SJV a "serious" nonattainment area for particulates (PM_{10}) — one of only 9 such areas in the country. In December, 2004, EPA classified the Valley as nonattainment for the new fine particulate ($PM_{2.5}$) standard. The pollutants covered by these two standards are closely related: PM_{10} and $PM_{2.5}$ refer, respectively, to particles smaller than 10 or 2.5 micrometers in diameter. The PM_{10} category *includes* the smaller $PM_{2.5}$ particles — the latter group is simply a subset that is believed to cause the most harmful effects and, therefore, has been given its own standard. The PM_{10} standard is expressed as both an annual and a 24-hour limit. The Valley exceeds both.

Like ozone, particulate emissions are regulated primarily because of their health effects. $PM_{2.5}$, and to a lesser extent PM_{10}, can lodge deep in the lungs, where they may aggravate asthma, bronchitis, emphysema, and pneumonia. Research has associated $PM_{2.5}$ with tens of thousands of premature deaths annually in the United States.[168]

Particles of either size category come from a variety of sources, including smoke from open burning and wood burning, diesel exhaust, tire and brake wear, sulfates (principally from fuel combustion), nitrates (both from fuel combustion and from agricultural sources), industrial emissions, and geological sources (principally, wind blown dust from farm operations, construction, and unpaved roads). In the Valley, the highest concentrations of particles occur during the fall and winter, when ammonium nitrate, geologic material, and carbon particles from woodstoves and fireplaces account for the largest share of the particles.[169]

In June 2003, the SJVAPCD gave final approval to its plan to achieve the PM_{10} standard. (There is, as of yet, no $PM_{2.5}$ plan.) The plan requires 66.4 tons per day of reductions in direct PM_{10} emissions.[170] Since agriculture-related sources account for more than half of all directly emitted PM_{10} in the Valley, growers will be required to participate in a Conservation Management Practices Program to reduce emissions. The growers will, however, by their own choosing, select measures most appropriate for their operation. The source categories include (1) unpaved roads, (2) unpaved vehicle/equipment traffic areas, (3) land preparation, (4) harvest, and (5) other - including windblown PM_{10} from open areas, and agricultural burning. Practices that

---

[167] Ibid., pp. 4-2 through 4-27.

[168] For additional information, see CRS Report RL31531, *Particulate Matter Air Quality Standards: Background and Current Developments*.

[169] SJVAPCD, *2003 PM_{10} Plan*, as amended December 18, 2003, p. ES-10, available at [http://www.valleyair.org/Air_Quality_Plans/AQ_plans_PM_2003PlanTOC.htm]. Click on Executive Summary.

[170] Ibid., p. ES-14.

reduce pesticide application may be added at a later date. Growers must select at least one management practice from each of the five categories, but have no specific emission reduction target.[171]

CAFOs will also participate in the program. Two other fast growing emission sources targeted by the plan are residential wood combustion and paved road dust.

Federal Assistance. Federal assistance to improve air quality is limited. The EPA provides air pollution control program support to states, tribes, municipal governments, or other agencies with legal responsibility for air pollution planning, and development and establishment of air pollution control activities. The total amount provided in FY2003 was $180.5 million. The largest grant (most likely to the State of California) was $7 million under this program. EPA also has some smaller programs for specific purposes (e.g., clean school buses, interstate ozone transport, and surveys, studies, investigations, and demonstrations). Most of these grants are less than $1 million.

A far larger grant program, the Congestion Mitigation and Air Quality Management Program (CMAQ), is administered by the Department of Transportation. It provides funds to states to improve air quality by reducing traffic congestion. Grants to the states are based to a large extent on the severity of the state's air pollution problem, including the number of people living in nonattainment or former nonattainment (maintenance) areas. Eight categories of transportation projects can qualify for funding: (1) mass transit; (2) traffic flow improvements; (3) rideshare programs; (4) traffic demand management programs; (5) bicycle and pedestrian projects; (6) public education; (7) vehicle inspection and maintenance programs; or (8) conversion of vehicles to burn alternative fuels. California received $340 million under this program in FY2003.

---

[171] Ibid., p. 4-25.

Chapter 6 — Transportation Investment and Economic Development

There is a broad range of opinion within the planning or transportation community as to the significance of the role of spending on transportation infrastructure in promoting or triggering regional economic development. A Department of Transportation study, covering 1950 to 1989, concluded that, at the national level, industries realize a cost savings of 24 cents annually for every dollar increase in the value of nonlocal road work (for all roads the return was calculated to be 18 cents on the dollar).[172] Regional economic development proponents see transportation infrastructure improvement projects as leading to an increased regional productivity for businesses operating in the region. They see this productivity improvement as giving the region a critical advantage in attracting firms to the region. Some research assigns a lesser role to transportation, especially highway construction, arguing that transportation infrastructure is just one of many influences and is most likely to have an impact in places that are already major natural growth centers or where the project improves the connection of smaller urban areas to larger more diversified economies. Critics of many transportation based economic development plans see most of them as based on a "build it and they will come" attitude when, unless other business factors are in place, a great deal of money can be spent on transportation infrastructure with few, if any, firms relocating because of it. A statement that most would agree with is that good transportation is a necessary although not a sufficient condition for increased economic development.[173]

The Federal-Aid Highway System and the SJV[174]

The vast majority of federal funding that can be spent on federal-aid highways is apportioned to the state departments of transportation through five large formula programs: Interstate Maintenance Program (IM), National Highway System (NHS), Surface Transportation Program, Congestion Mitigation and Air Quality Improvement Program (CMAQ), and the Highway Bridge Replacement and Rehabilitation Program (HBRRP). In the case of California and the SJV, the funds are under the control of the California Department of Transportation (CalTrans). In addition, during the reauthorization of federal highway and mass transit programs, representatives of some state departments of transportation may make contact with members of a state's congressional delegation to discuss which projects the DOT wants Members to put forward in legislation. It is also the opportunity for the

---

[172] U.S. Dept. of Transportation. *Summary: Economic Impacts of Federal-Aid Highway Investment.* Available at [http://www.fhwa.dot.gov/policy/empl.htm] .

[173] Texas Transportation Institute. *State Highway Investment and Economic Development: State-of-the-Art Review.* College Station, Texas, The Texas Transportation Institute. 1990. 63 p.

[174] Section written by Robert Kirk, Specialist in Transportation Policy, Resources, Science, and Industry Division.

Members to impress on the state DOT what their priorities are.[175] During times of deficit constrained budgets, these formula programs are where the vast majority of the federal highway money is and this money is under the control of the state, not the federal government.

Most of the remaining programs (referred to as discretionary or allocated programs) are under the nominal control of the Federal Highway Administration (FHWA). In recent years, nearly all these funds have been earmarked by Congress. Historically, in surface transportation reauthorization bills congressional project designations (earmarks) have been restricted to the High Priority Projects Program; other allocated programs have been earmarked in the annual appropriations bills.[176]

The recently enacted surface transportation reauthorization act, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU; P.L. 109-59) includes a number of provisions that could be of importance to the SJV. The act designates state route 99 from Bakersfield to Sacramento as High Priority Corridor 54, the "California Farm-to-market Corridor," on the National Highway System. The act also designates Corridor 54 as a future Interstate System highway. The corridor designation does not provide funding for the route but makes it eligible for funding in future highway reauthorization bills under the National Corridor Infrastructure Improvement Program (NCIIP). All NCIIP money in SAFETEA-LU was earmarked in the bill; further funding under the program will either have to wait for the next reauthorization bill or additional funding during the annual appropriations process.

The High Priority Corridors are also authorized on a "such sums as may be necessary" basis under section 1304, but SAFETEA-LU does not provide funding. This means that appropriators would have to appropriate funds from the Treasury general fund (as opposed to the highway trust fund) during future annual appropriations bills to provide funds under section 1304. The future Interstate System highway designation for state route 99 also does not provide access to any new funds. The state, however, is required to bring the highway up to Interstate System standards within 25 years. This could lead to more state spending of federal-aid highway formula funds on route 99 in the future. It also allows the state to add future interstate placards to the route and some feel this, along with the designation itself, could have a positive impact on economic development in the SJV.

Several SJV projects were earmarked in the act. The vast majority of federal-aid highway funding for California, however, is provided to the California Department

---

[175] Because of the recent passage of the Safe, accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (P.L. 109-59), which funds surface transportation through FY2009, it will probably be FY2007 or FY2008 before the reauthorization debate will be reactivated by stakeholders. During the interim, however, some funding may be made available for earmarking during the annual appropriations process.

[176] SAFETEA-LU expanded authorizations earmarking beyond the High Priorities Program, completely earmarking the Projects of National and Regional Significance Program, the National Corridor Infrastructure Improvement Program, and all of the funds provided under the "Transportation Improvements" authorization.

of Transportation (CalTrans) via formula driven programs. SAFETEA-LU provides California with $17.1 billion in High Priority Project and formula program apportionments for FY2005 through FY2009. According to FHWA data this is 134.3% of the annual average that California received under the previous authorization bill. Whether this increase will be reflected in spending on highways in the SJV will be determined by CalTrans.

SAFETEA-LU also authorizes two SJV New Fixed Guideway Capital transit projects for preliminary engineering: the San Joaquin, California — Regional Rail Commission Central Valley Rail Service and the San Joaquin Regional Rail Commission Commuter Rail (Altamont Commuter Express). Surface transportation authorization bills authorize far more New Fixed Guideway projects than there is money for, consequently these listings do not guarantee that any money will be provided.

The Obligation of Federal-Aid Highway Funds in the SJV

The Federal Highway Administration provided information on the obligation of federal-aid highway funds by the state of California to the eight counties in the SJV for the years 1995 through 2004 (see **Table 110**). The totals obligated over this ten year period varied greatly from county to county and from year to year. This is not unusual at the local level where the cycle of project initiation and completion can make funding look erratic. It also makes it difficult to draw conclusions from annual comparisons. For the ten year period as a whole obligations to SJV counties were just over 9.3% of California's total obligations. This percentage varied from year to year from a low of just 4% in 1995 to a high of 15.5% in 1998. These variations reflect project construction cycles.

Based on statistics from the 2000 Census the eight SJV counties' population (3.303 million) was roughly 9.8% of California's population (33.872 million). For 2000 these eight counties received 10.7% of California's federal aid-highway obligations. Population estimates for the population of the eight SJV counties for 2003 indicate the SJV population was 10.1% of California's total population. In 2003 the SJV counties received 10.2% of California's total federal-aid highway obligations. As mentioned earlier, the construction cycle has an impact on these comparisons. The SJV population percentage would exceed the obligation percentage for fiscal years 1995, 2001 and 2004, while the obligation percentage would greatly exceed the population percentage in 1998 when obligations hit an all time high for the valley. The eight SVJ counties, however, according to 2003 FHWA data, account for 9, 670 miles (or 17%) of California's 54,389 miles of federal-aid highway system miles.

Table 110. Federal-Aid Highway Obligations: SJV — California — United States

(Fiscal Years 1995-2004, in $1,000s)

County	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Totals
SJV											
Fresno	$23,171	$10,557	$92,230	$52,565	$47,043	$45,751	$30,499	$62,509	$69,823	$82,547	$516,696
Kern	11,673	53,518	39,246	65,294	55,164	50,656	41,981	122,636	48,480	22,706	511,354
Kings	1,059	17,683	9,011	7,612	8,311	1,916	7,409	4,550	10,022	10,350	77,922
Madera	585	5,605	2,215	22,703	18,236	16,230	5,170	3,406	10,556	6,173	90,879
Merced	33,291	16,243	4,508	35,357	3,449	2,202	10,608	26,577	18,621	6,299	157,155
San Joaquin	5,038	44,046	22,496	26,921	47,997	15,132	16,809	16,163	22,690	15,094	232,387
Stanislaus	8,975	18,466	12,086	20,788	14,154	20,276	9,382	13,096	36,005	7,889	161,117
Tulare	3,097	15,262	16,278	81,853	15,512	8,333	15,192	32,335	16,259	19,514	223,635
Total:	**86,889**	**181,381**	**198,069**	**313,094**	**209,866**	**160,497**	**137,049**	**281,272**	**232,457**	**170,571**	**1,971,145**
Adjacent Counties											
Tuolumne	(71)	(2,953)	2,292	22,637	2,370	2,928	2,357	8,899	22,505	14,242	75,207
Mariposa	19	85	5,069	1,149	3,078	(633)	706	3,775	1,205	(600)	13,854
California											
Total	2,158,295	1,793,450	1,996,472	2,019,670	2,396,076	1,495,081	2,191,152	2,368,622	2,270,903	2,467,074	21,156,795
United States											
Total	**19,909,520**	**19,050,063**	**20,759,129**	**20,447,459**	**24,877,630**	**25,098,109**	**28,444,162**	**30,802,021**	**29,846,126**	**30,642,573**	**249,876,792**

Source: County data provided by the Federal Highway Administration. California and United States figures taken from *Highway Statistics*, various years.
Totals may not add due to rounding.

The Relation Between Freight Infrastructure and Economic Development[177]

Improvements to freight infrastructure in a region can help retain and attract new businesses to an area because as transportation costs decline, the customer base of local businesses expands. In other words, local businesses can reach markets that were once unobtainable because the cost of transportation kept them from being price competitive. Transportation improvements can also lower the cost of inputs for local businesses. Conversely, infrastructure constraints that cause congestion delays can be damaging to businesses especially those that place a high value on reliability and transit time. In recent years, many industries have improved their productivity by reducing inventory levels and increasing their reliance on "just-in-time" deliveries. Because economic development, including job retainment and creation, can be aided by freight transportation facilities, public officials often express interest in using public funds to finance freight improvements, particularly in distressed areas.

An issue policymakers confront is whether it is appropriate to use public funds to assist a largely private enterprise. Cargo owners, trucking firms, vessel operators, port and rail terminal operators, and railroads are all for-profit, privately owned businesses. In the case of railroads, the right-of-ways, in addition to the rolling stock, are privately owned. An issue that follows from private control of freight operations is investment risk. Typically, a proposed transportation project involves a fixed infrastructure segment whose potential economic benefit depends on the intensity of its use by privately controlled mobile assets. The physical life of a freight facility may outlive its economic life if (or when) freight flow patterns or logistics strategies change. This danger may be most pronounced for projects involving connections to rail lines, many of which have been abandoned in recent years. A third issue policymakers may confront when considering public investment in freight facilities is community opposition. A distressed community usually wants more jobs, but they may not want more trucks.[178]

Supporting the Perishable Goods Delivery Network. With fruit and vegetable production central to the SJV economy, a discussion of how freight transportation could be linked to economic development in the region can begin with support for this commodity's delivery system. Nationally, about 95% of perishable product appears to move by truck because of its relatively high value and its requirements for tight temperature control, atmospheric control, and fast transit.[179] In California, the California Trucking Association estimates that in 1997, 98% of

---

[177] Section written by John Frittelli, Specialist in Transportation Policy, Resources, Science, and Industry Division.

[178] U.S. DOT, FHWA, *Talking Freight Seminar Series*, "Tying Freight to Economic Development," February 18, 2004 and January 19, 2005. An audio recording of this seminar along with presentations is available at [http://talkingfreight.webex.com].

[179] "Railroads Target Cool Cargo," *Journal of Commerce*, August 26- September 1, 2002, p. 21.

California's fresh fruits and vegetables was hauled by truck.[180] Because perishables transport is mostly a truck-based delivery system, the discussion above related to federal support of highway improvements in the SJV is highly relevant.

Port Connections. Perishable products accounted for about 20% of total U.S. food and agricultural exports in 2000.[181] Reportedly, roughly 14% of SJV perishables production is exported, with some of that portion destined for Asia.[182] The truck routes to the Ports of Oakland, Stockton, Los Angeles, Long Beach, and Hueneme are therefore important infrastructure links in the perishables export delivery network. The Port of Oakland generally draws from origins further south than merely the halfway point to Los Angeles, because trans-Pacific container ships generally call at Los Angeles or Long Beach first before proceeding to Oakland. Thus, Oakland often offers a later sailing date and a shorter ocean transit to Asia than does Los Angeles or Long Beach (the San Pedro ports).

Landside access to California ports have been a long standing issue and these ports have received federal funding for improving road and rail links to the ports.[183] The ports are studying further landside access improvements.[184] The Maritime Administration (MARAD) has surveyed the condition of truck and rail routes connecting with seaports and published its findings in a report entitled *Intermodal Access to U.S. Ports: Report on Survey Findings,* dated August 2002.[185]

A Rail Alternative. Railroads capture roughly 5% of the perishables transport market. Their perishable cargo mix tends to favor "hard products" such as onions, potatoes, and carrots. Railroads generally offer a cheaper alternative than trucks for long distance transport. Thus, railroads compete mostly for SJV produce bound for the eastern United States or Canada. The Union Pacific Railroad has teamed up with the CSX Railroad and the SJV Railroad to offer "Express Lane Service" for SJV produce moving to the East Coast.[186] The Burlington Northern Santa Fe Railroad and Swift Transportation (a trucking firm) have also teamed up to compete for long-haul

---

[180] *California's Produce Trucking Industry: Characteristics and Important Issues,* Center for Agricultural Business, California Agricultural Technology Institute, March 1999.

[181] USDA, Economic Research Service, *Changing Structure of Global Food Consumption and Trade,* May 2001, p. 31.

[182] "Trouble on the Waterfront," *Los Angeles Times,* October 3, 2002.

[183] For a listing of federal funding for landside access improvements at California ports, see U.S. DOT, FHWA, *Compendium of Intermodal Freight Projects,* 2002, available at [http://ntl.bts.gov/card_view.cfm?docid=5194] (Viewed 1/24/05).

[184] An inventory of California's Intermodal Connectors is provided at [http://www.fhwa.dot.gov/hep10/nhs/intermodalconnectors/california.html].

[185] This report is available at [http://www.marad.dot.gov/Publications/01%20IAccess%20Report%20pub.doc] (viewed 1/24/05).

[186] "Cold Competition," *Sacramento Bee,* January 20, 2002, p. D1.

perishable cargo.[187] The railroads have an economic incentive to "win back" from trucks as much of the perishables market as possible because refrigerated cargo is one of the most profitable cargos surface modes carry. The railroads are investing in new refrigerated railcar technology to improve their reliability in maintaining proper temperature control.[188]

Freight rail infrastructure issues confronting the SJV region are a microcosm of national rail infrastructure issues. One of the bottlenecks that the main line railroads face that is particularly relevant to the SJV is the Tehachapi Pass which connects the Central Valley and the Los Angeles area. The railroads would like to add a second track over the pass to accommodate increased freight traffic but to do so will require building tunnels and bridges because of the difficult terrain. Short line railroads in the SJV face a similar situation as do other short line railroads in other parts of the country. They need to upgrade their track to handle the larger 286,000 pound railcars that the main line railroads are increasingly using. Short line railroads typically operate on routes that were formerly part of a main line railroad's network but were abandoned by the main line railroad due to low profitability on that route. Before abandonment, the main line railroad often deferred maintenance on these sections of track, focusing their resources on their trunk lines.

The federal role in funding rail infrastructure is limited largely because the railroads are for-profit corporations with exclusive access to their privately owned right-of-ways. Congress has reauthorized a program called the Railroad Rehabilitation and Improvement Financing Program (RRIF, P.L. 109-59) which provides loans and loan guarantees for rail infrastructure improvements. However, no funds have been appropriated to the RRIF program in recent years. As part of the American Jobs Creation Act (P.L. 108-357 which was signed into law on October 22, 2004), Congress enacted the Local Railroad Rehabilitation and Investment Act which provides tax credits to short line railroads, such as the SJV Railroad, for track rehabilitation or maintenance.[189] In the FY2001 Consolidated Appropriations Act (P.L. 106-554), Congress provided the SJV Railroad a $3 million Economic Development Initiative grant to upgrade a 45 mile section of track between Huron and Visalia.

Warehouse and Distribution Employment. Improving the infrastructure that supports the perishables delivery network in the SJV would most directly benefit the producers of these goods, increasing the value of their land, but may do little to improve the economic welfare of non-landowners in the area. Another issue is whether or how freight transportation might be used as a means to diversify the employment base. For example, could the Valley capitalize on its location next to two of the most prominent gateways for U.S. trade? The United States is the largest maritime trading nation and the marine container shipping business is growing. From 1995 to 2001, merchandise imported and exported through U.S. seaports in

---

[187] "Alliance Means Fresher Fruit," *Modesto Bee*, January 29, 2002, p. D1.

[188] "Reefer Marketing," *Traffic World*, May 5, 2003, p. 22.

[189] For further discussion of the federal role in funding freight rail infrastructure, see CRS Report RL31834, *Intermodal Rail Freight: A Role for Federal Funding?*

marine containers increased by 36%. At Los Angeles, it increased by 85%, at Long Beach it increased by 50%, and at Oakland it increased by 5%.[190] At the ports of Los Angeles and Long Beach, container trade is expected to triple over the next two decades.[191] Combined, the ports of Oakland, Los Angeles, and Long Beach handle more than 40% of the nation's total marine container volume.[192]

The Inland Port Concept. General cargo shipped in marine containers requires a large staging area at the port where containers can await transfer to ship (for export) or truck pick-up (for import).[193] However, while container ports face a pressing need for more waterfront land, other interests in the port city may view waterfront property as more valuable for residential, office, or retail development.[194] (The additional space requirements of container terminals led to the shift of cargo handling from San Francisco to Oakland). With a space crunch at the urban waterfront, container ports are looking inland for more land.[195] They are looking beyond the immediate urban area in search of less expensive land in semi-rural or suburban areas beyond city limits. These so-called "inland ports" (a.k.a. satellite or feeder ports) could serve as container sorting facilities where local cargo moving by truck could be separated from long-distance cargo moving by rail. The inland port could be connected with the waterfront port by a rail link, which would shuttle containers between the two ports. To the extent that a rail shuttle displaced container movement by truck, it would have the potential to mitigate road congestion and air pollution in a port community. The downside of the inland port concept is that it inserts an extra link in the container supply chain, increasing transport costs and transit time compared to a direct truck or rail move to the seaport. Whether the inland port concept is economically viable for a given container port largely depends on the spread between real estate costs and transportation costs in the area. In essence, the inland port concept substitutes expensive urban waterfront real estate with less expensive rural or suburban real estate plus the cost of a short-haul shuttle train.

The San Pedro ports are examining the "Inland Empire," an area east of the city of Los Angeles centered around the town of Ontario, and the Port of Oakland is

---

[190] U.S. Department of Transportation, Bureau of Transportation Statistics, *U.S. International Trade and Freight Transportation Trends*, Washington, D.C. 2003, p. 30.

[191] California Department of Transportation, *Global Gateways Development Program*, January 2002, p. 8.

[192] California Department of Transportation, *Global Gateways Development Program*, January 2002, p. 11.

[193] The most efficient way to store a container awaiting truck pick up is on a chassis (a steel frame with wheels). Due to space constraints at many ports, containers may be stacked up to six high, requiring unstacking and re-stacking when the trucker arrives for pick up. The additional time required may cause truck back ups at the port's entrance gate.

[194] John Buntin, "Pier Pressure: Ports are struggling to balance the need to expand with the public's newfound interest in urban waterfronts," *Governing*, October 2004, p. 28.

[195] "Inland Handoff," *Journal of Commerce*, February 14, 2005, p. 31.

examining Stockton, as potential cites for their inland ports.[196] While both these areas already are clusters of cargo activity, a rail shuttle linking them to their respective seaports does not exist, but is being studied by both ports. While the Inland Empire is not located in the SJV, the Stockton area is located at the northern end of the Valley and thus may have the potential for freight related employment as a means of diversifying the employment base in the northern end of the Valley. The Port of Oakland has also entered into an arrangement with the City of Shafter as an inland port location.[197] Although Shafter (located near Bakersfield) is only about 100 miles from Los Angeles, it has teamed up with the Port of Oakland, nearly 300 miles to the north. The strategy is to route containers of imported merchandise destined for the Los Angeles market through the Port of Oakland and on to Shafter by rail shuttle. In Shafter, the imported containers will be unloaded at retailers' warehouses located in the area. Some large retailers have located their distribution centers in the Shafter - Bakersfield area to supply the Los Angeles market. Once unloaded, the empty containers will then be available for the export of SJV produce back through the Port of Oakland. As mentioned above, the San Pedro ports are generally the first port of call for container ships arriving from Asia but due to congestion at these ports, the Port of Oakland believes it can capture some of the imported cargo bound for Los Angeles. Northwest Container Services will provide the rail shuttling of marine containers between Oakland and Shafter.[198]

The Logistics Park Concept. In the container shipping business, it is often said that the commodity most often shipped is air. Merchandise imported in containers is heavily skewed toward consumer products and thus destined for urban areas. In contrast, U.S. goods exported in containers are heavily skewed toward agricultural products and thus originate in rural areas. Container shippers must pay for the cost of moving empty containers from urban, surplus areas to rural, deficit areas. Locating importers where the exporters are in order to reduce empty container repositioning costs is a strategy being pursued by at least one firm.[199] The concept of building a "logistics park" (as opposed to an "industrial park") is gaining attention as an economic development tool.[200] A logistics park would facilitate the distribution of consumer goods to major retail markets. The SJV's mid-state location could offer big box retailers the option of locating one mega-sized warehouse to serve both Los Angeles and San Francisco, rather than building separate warehouses on the fringes of these cities. Although trucking costs would be greater with one warehouse serving both markets, overhead costs would be less than operating two warehouses and land is less expensive in the central SJV than at the periphery of Los Angeles and San Francisco. The cost equation would involve substituting more transportation for less expensive real estate. However, rising fuel prices, rising truck insurance costs, and truck driver labor shortages could alter the cost equation as could changes in the real estate market. Wal-mart, Target, Best Buy, Ikea, The Gap, and Sears are among the

---

[196] Ibid.

[197] Port of Oakland, Press Release dated October 28, 2004.

[198] "Port to Distribution Center by Rail," *Journal of Commerce,* June 21, 2004, p.1.

[199] Ibid.

[200] Ken Cottrill, "Developers Target Logistics," *Traffic World,* November 24, 2003.

retailers that apparently have decided that a regional distribution center located in the central SJV makes economic sense. These retailers import much of their product from Asia and have recently built regional distribution centers in the SJV area between Madera and Porterville. United Parcel Service (UPS) has built a distribution center in Visalia, from which it can reach most of California in 24 hours by ground transportation. However, distribution centers are land intensive, and in the case of the SJV, the best use of prime agricultural soil is also a consideration.

The federal government funds surface transportation infrastructure through the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA, P.L. 109-59) which the 109th Congress recently enacted.[201] Among federal funding programs that can assist in the development of inland ports or logistics parks is one program administered by the FHWA. The Congestion Mitigation and Air Quality Improvement Program (CMAQ) can be used to improve rail links to ports where truck traffic and their emissions are reduced and the region is in an air quality non-attainment area. In addition, the Public Works and Development Facilities Program administered by the Economic Development Administration of the Department of Commerce is also relevant to freight transportation projects. This program can be used to improve access roads to industrial parks, make port improvements, and build business incubator facilities if they are located in distressed communities.[202]

High Speed Rail and Economic Development

California is studying the feasibility of building a high speed rail line connecting the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. The network would be approximately 700 miles in length, with exclusive tracks that are fully grade separated for most of the system, and with trains capable of traveling up to speeds of 220 mph. The projected cost to construct the system is $33 to $37 billion (in 2003 dollars).[203] California voters will decide on a bond measure in 2006 to pay for part of the project.

If approved, the economic growth potential of the train on the SJV will depend on whether and how often the train will stop in the Valley. Reportedly, at a November 2004 meeting, the California High-Speed Rail Authority is proposing only one stop in the SJV — at Fresno.[204] There would be no stops along the 120 mile section between Fresno and Bakersfield.

The most direct economic development benefits that could be linked to a high-speed rail line require station stops in the SJV. Station development effects could

---

[201] For a summary of provisions in this act, see CRS Report RL33119, *SAFETEA: Selected Major Provisions.*

[202] Examples of how these federal programs were used to fund specific freight related projects are contained in U.S. DOT, FHWA report *Funding and Institutional Options for Freight Infrastructure Improvements*, 2002, available at [http://ntl.bts.gov/card_view.cfm?docid=11125] (Viewed 1/24/05).

[203] Brochure of the California High-Speed Rail Authority, n.d.

[204] "No easy route to picking best line for bullet train," *The Fresno Bee,* Nov. 11, 2004.

include office, retail, hotel, and some housing that may gravitate around the vicinity of a station. The immediate beneficiaries would be property owners that could expect the value of their land to increase. Development around the station could also generate jobs and diversify the employment base. However, station development effects are probably most applicable to a commuter rail line and could be minimal in the case of an intercity rail line. In order for transportation improvements to generate economic activity, economic developers stress that "something else must be happening," by which they mean that the infrastructure improvement must facilitate connection to a center of economic activity. Simply connecting "nowhere to nowhere" will not generate development.[205] Increasing the number of station stops in the SJV greatly adds to travel time for the passengers traveling between the San Francisco Bay Area and Los Angeles or San Diego. Thus, as stops are added between these rail line end points, the economic rationale for the additional cost of purchasing high-speed train sets and building and maintaining high speed track is greatly undermined. Station development aside, economic development impacts could also be linked to the construction and maintenance of the track in the SJV as well as employment associated with running the trains. A high-speed rail line may also stimulate a train equipment and repair supply industry although these suppliers need not necessarily locate in the SJV.

Perhaps the biggest potential economic impact that a high-speed rail line could have on the SJV would be its impact on the California state budget. The United States' experience with Amtrak and its predecessors, as well as the experience of foreign countries that have built high-speed rail lines suggest that intercity passenger rail is almost always a money-losing operation. Although originally envisioned as a for-profit corporation, Amtrak has failed to achieve a profit or even operational self-sufficiency. It has continued to rely on annual (and increasing) federal subsidies to recoup its losses. Likewise, in foreign countries that have built state of the art high-speed rail infrastructure (namely Japan and France) it is the exception rather than the norm for a given route to achieve *operational* self-sufficiency. A huge drain on government resources has prompted many countries to experiment with new ways of organizing and financing their intercity railroads in recent years. To generate sufficient fare revenue to at least cover operating costs (i.e. the cost of running the trains, not building and maintaining the track), intercity railroads require enough passengers to run nearly full trains repetitively. Put simply, traffic density is key. Moreover, the potential to reach sufficient traffic density has a lot to do with factors external to the railway, such as city landscape, population densities, distances between cities and their configuration with respect to one another, and the prices of alternative modes, to name just a few. Rail passenger service can become a significant drain on public resources, thereby impacting other state programs that also have a bearing on the economic welfare of the SJV.

The federal government supports high-speed rail development through the Federal Railroad Administration's Next Generation High-Speed Rail Research and Development program. This program supports work on high-speed train control

---

[205] U.S. DOT, FHWA, *Talking Freight Seminar Series*, "Tying Freight to Economic Development," February 18, 2004 and January 19, 2005. An audio recording of this seminar along with presentations is available at [http://talkingfreight.webex.com].

systems, track and structures technology, corridor planning, grade crossing hazard mitigation, and high-speed non-electric locomotives. Congress appropriated about $20 million for this program in FY2005. The FRA has awarded grants to the California High-Speed Rail Authority through this program for completion of its environmental impact report and statement which was released in November, 2005.[206]

[206] A listing of these grants is available on FRA's website at [http://www.fra.dot.gov/us/content/409].

APPENDIX A: Reports and Studies on the SJV: 1980-2005

This appendix of citations is illustrative and by no means exhaustive. For example, there are hundreds if not thousands of citations in the published research literature on the ecology, water resources, geology, and air quality that rely on San Joaquin and/or Central Valley data for their analyses. The citations here are listed in reverse chronological order.

Water Resources Management and Geomorphology

Hanak, Ellen. 2005. Water for Growth: California's New Frontier. Public Policy Institute of California, San Francisco. July.
[http://www.ppic.org/content/pubs/R_705EHR.pdf]

Hanak, Ellen and Antonina Simeti. 2004. Water Supply and Growth in California: A Survey of City and County Land-Use Planners. Public Policy Institute of California, San Francisco. Occasional Paper. March.
[http://www.ppic.org/content/pubs/OP_304EHOP.pdf]

Hanak, Ellen. 2003. Who Should Be Allowed to Sell Water in California? Third-Party Issues and the Water Market. Report. Public Policy Institute of California, San Francisco. July.
[http://www.ppic.org/content/pubs/R_703EHR.pdf]

Hanak, Ellen. 2002. California's Water Market, By the Numbers. Public Policy Institute of California, San Francisco.
[http://www.ppic.org/content/pubs/OP_1002EHOP.pdf]

Edminster, Robert J. 2002. Streams of the San Joaquin: Valley of the Tules: Geographic and Ecological Considerations of California's SJV. Los Banos, California. Quercus Publications.

California. Department of Water Resources. San Joaquin District. 2002. Preliminary Westside Groundwater Basin Assessment Report: Integrated Storage Investigations Conjunctive Water Management Program. Division of Planning and Local Assistance. Sacramento.

California Department of Water Resources, Division of Flood Management. 1999. The Hydrology of the 1997 New Year's Flood, Sacramento and San Joaquin Basins. Sacramento.

California Department of Water Resources. 1995. San Joaquin River Management Plan. Report prepared for the Resources Agency by an Advisory Council established by Assembly Bill 3603, the Central Valley Project Improvement Act. Sacramento.

U.S. Department of the Interior. U.S. Geological Service. 1993. Numerical Simulation of Ground-Water Flow in the Central Part of the Western SJV. Washington, D.C., U.S. G.P.O.

California Dept. of Water Resources, San Joaquin District, 1992. Historical Unconfined Ground Water Trends in the SJV. Sacramento.

U.S. Department of the Interior. U.S. Geological Service. 1991. The Cenozoic Evolution of the SJV. Washington, D.C, U.S. G.P.O.

U.S. Department of the Interior. U.S. Geological Service. 1990. Character and Evolution of the Ground-Water Flow System in the Central Part of the Western SJV, California. Report prepared in cooperation with SJV Drainage Program. Washington, D.C. : U.S. G.P.O.

United States. Bureau of Reclamation. 1990. Emerging Technologies and Research Needs. Proceedings from the 1989 seminar, Sacramento, California, November15-16, 1989 / co-sponsored by U.S. Committee on Irrigation and Drainage and Bureau of Reclamation.

California. Dept. of Water Resources. San Joaquin District. 1989. Ground Water Study, SJV : Fourth Progress Report. District Report. Fresno.

Davis, George H. and Tyler B. Coplen. 1989. Late Cenozoic Paleohydrogeology of the Western SJV, California, as Related to Structural Movements in the Central Coast Ranges. Boulder, Colorado. Geological Society of America.

Dale, Larry L. and Lloyd S. Dixon. 1988. The Impact of Water Supply Reductions on SJV Agriculture during the 1986-1992 Drought. Santa Monica, CA : Rand Corporation.

California Dept. of Water Resources, San Joaquin District, 1985. Ground Water Study, SJV : Third Progress Report. California Department of Water Resources, San Joaquin District. District Report. Fresno.

U.S. Department of the Interior. U.S. Geological Service. 1984. Tertiary Stratigraphy of the Southeastern SJV, California. Washington, D.C : U.S. G.P.O.

California Department of Water Resources, San Joaquin District. 1984. Irrigation Water Management in the Southern SJV. District Report. Fresno.

U.S. Department of the Interior. U.S. Geological Service. 1983. The Kern River Formation, Southeastern SJV, California Washington, D.C : U.S. G.P.O.

California. Dept. of Water Resources. 1982. The Hydrologic-Economic Model of the SJV. Sacramento.

California Department of Water Resources, San Joaquin District in cooperation with University of California Cooperative Extension. 1981. Crop Water Use : A Guide for Scheduling Irrigations in the Southern SJV.

California Dept. of Water Resources, San Joaquin District, 1981. Ground Water Study, SJV : Second Progress Report. Fresno.

California Department of Water Resources, San Joaquin District and U.S. Department of Agriculture, Soil Conservation Service. 1981. Irrigation Water Management in the Southern SJV. District Report. Fresno

California Department of Water Resources, San Joaquin District. 1980. Ground Water Study, SJV : First Progress Report. Fresno.

Water Quality

California. Department of Water Resources. San Joaquin District. Division of Planning and Local Assistance. 2004. Selenium Removal at Adams Avenue Agricultural Drainage Research Center: Agricultural Drainage Program, Drainage Treatment, Sacramento.

U.S. Department of the Interior. U.S. Geological Service. 2003. Evaluation of Diazinon and Chlorpyrifos Concentrations and Loads, and Other Pesticide Concentrations, at Selected Sites in the SJV, California, April to August, 2001. Report prepared in cooperation with the California Department of Pesticide Regulation. Sacramento.

U.S. Department of the Interior. U.S. Geological Service. 1998. Nitrate and Pesticides in Ground Water in the Eastern SJV, California: Occurrence and Trends. Washington, D.C., U.S. G.P.O.

U.S. Department of the Interior. U.S. Geological Service. 1997. Calculation of a Water Budget and Delineation of Contributing Sources to Drainflows in the Western SJV. Report Prepared in Cooperation with the Panoche Water District and the California Department of Water Resources.

United States Congress. House. Committee on Natural Resources. Subcommittee on Oversight and Investigations. 1994 Agricultural Drainage Issues in the Central Valley, California: Oversight Hearing Before the Subcommittee on Oversight and Investigations of the Committee on Natural Resources, House of Representatives, One Hundred Third Congress, First Session. Hearing Held in Washington, Dc, October 26, 1993. Washington, D.C., U.S.G.P.O

U.S. Department of the Interior. U.S. Geological Service. 1997. Pesticides in Surface and Ground Water of the San Joaquin-Tulare Basins, California: Analysis of Available Data, 1966-1992. Report prepared in cooperation with the National Water-Quality Assessment Program. Washington, D.C., U.S. G.P.O.

U.S. Geological Survey. 1991. Geochemical Relations and Distribution of Selected Trace Elements in Ground Water of the Northern Part of the Western SJV, California. Washington, D.C. U.S.G.P.O.

Bradford, David F. 1989. Evaluation of Methods to Minimize Contamination Hazards to Wildlife Using Agricultural Evaporation Ponds in the SJV, California. Report prepared for the California Department of Water Resources.

National Research Council. 1989. Committee on Irrigation-Induced Water Quality Problems. Irrigation-Induced Water Quality Problems: What Can Be Learned from the SJV Experience? Committee on Irrigation-Induced Water Quality Problems, Water Science and Technology Board, Commission on Physical Sciences, Mathematics, and Resources, National Research Council. Washington, D.C., National Academy Press.

United States. Congress. House. Committee on Interior and Insular Affairs. Subcommittee on Water and Power Resources. 1987. Implementations of the Coordinated Operations Agreement: Implications for Water Quality in the Sacramento-San Joaquin Delta and San Francisco Bay :Oversight Hearing Before the Subcommittee on Water and Power Resources of the Committee on Interior and Insular Affairs, House of Representatives, One Hundredth Congress, First Session Hearing Held in Concord, California, April 3, 1987, Washington, D.C., U.S.G.P.O

SJV Drainage Program. Agricultural Water Management Subcommittee. 1987. Farm Water Management Options for Drainage Reduction. Report Prepared for the SJV Drainage Program by the Agricultural Water Management Subcommittee. Fresno.

Latey, John. 1986. An Agricultural dilemma : Drainage Water and Toxics Disposal in the SJV. Oakland, Calif. Division of Agriculture and Natural Resources, University of California.

United States Congress. House Committee on Interior and Insular Affairs. Subcommittee on Water and Power Resources. 1985. Agricultural Drainage in the SJV, California: Oversight Hearing Before the Subcommittee on Water and Power Resources of the Committee on Interior and Insular Affairs, House of Representatives, Ninety-ninth Congress, First Session. Hearing Held in Washington, Dc, June 4, 1985. Washington, D.C.,U.S.G.P.O.

California Legislature. Assembly. Office of Research. 1985. Agricultural Land Ownership and Operations in the 49,000 Acre Drainage Study Area of the Westlands Water District: a Report to the Assembly Office of Research. Sacramento.

California Legislature. Assembly. Committee on Water, Parks, and Wildlife. 1984. Joint Hearing of the Assembly Water, Parks, and Wildlife Committee and Senate Natural Resources and Wildlife Committee on SJV Agricultural Drainage and Kesterson National Wildlife Refuge, November 16, 1984. Sacramento.

Natural Resources: Ecology

U.S. Fish and Wildlife Service. 1998. Recovery Plan for Upland Species of the SJV, California. Portland, Oregon Region 1, United States Fish and Wildlife Service.

Williams, Daniel F., Sheila Byrne, and Theodore A. Rado (Eds). 1992. Endangered and Sensitive Species of the SJV, California: Their Biology, Management, and Conservation. Sacramento: California Energy Commission.

Moyle, Peter B. (Ed). 1982. Distribution and Ecology of Stream Fishes of the Sacramento-San Joaquin Drainage System. Berkeley, California: University of California Press.

Labor and Employment

Deborah Reed. 2004. Women, Work, and Family in California. Report. Public Policy Institute of California, San Francisco, California, November.
[Http://www.ppic.org/content/pubs/cc_1104drcc.pdf]

Rhode, Paul W. 2001. The Evolution of California Manufacturing. Report. Public Policy Institute of California, San Francisco, October.
[Http://www.ppic.org/content/pubs/r_1001prr.pdf]

Californian Department of Employment Development. 1992. Agricultural Employment Pattern Study. SJV, North Coast, Sacramento Valley, Central Coast, South Coast, Desert. Sacramento. Labor Market Information Division. Special Projects Unit.

Shimamoto, Chiyo Mitori. 1990. To the Land of Bright Promise: The Story of a Pioneer Japanese Truck Farming F.amily in California's San Joaquin Valley. Lodi, California, San Joaquin County Historical Society & Museum.

Poverty and Income

Reed, Deborah. 2004. California Counts: Recent Trends in Income and Poverty. Public Policy Institute of California, San Francisco, February.
[Http://www.ppic.org/content/pubs/cc_204drcc.pdf]

Mysyk, Avis. 2002. Cycles of Deepening Poverty in Rural California : the SJV Towns of Mcfarland and Farmersville. In Jill L. Findeis (Ed)., the Dynamics of Hired Farm Labor: Constraints and Community Responses. New York, CABI Publications.

Public Policy Institute of California. 2002. Welfare and Poverty Trends in California. San Francisco, April.
[Http://www.ppic.org/content/pubs/op_402xxop.pdf]

Reed, Deborah. 2002. Poverty in California. Public Policy Institute of California, San Francisco, December.
[Http://www.ppic.org/content/pubs/op_1202drop.pdf]

Reed, Deborah and Richard Van Swearingen. 2001. Poverty in California: Levels, Trends, and Demographic Dimensions. Public Policy Institute of California, San Francisco, November.
[Http://www.ppic.org/content/pubs/cc_1101drcc.pdf]

MaCurdy, Thomas, David Mancuso, and Margaret O'Brien-Strain. 2000. The Rise and Fall of California's Welfare Caseload: Types and Regions, 1980-1999. June. [http://www.ppic.org/content/pubs/R_600TMR.pdf]

Population and Demography

Johnson, Hans P. and Joseph M. Hayes. 2004. The Central Valley at a Crossroads: Migration and Its Implications. Report. Public Policy Institute of California, San Francisco, November.
[http://www.ppic.org/content/pubs/R_1104HJR.pdf]

Hill, Laura E. 2004. The Socioeconomic Well-Being of California's Immigrant Youth. Public Policy Institute of California, San Francisco, July.
[http://www.ppic.org/content/pubs/R_704LHR.pdf]

Public Policy Institute of California. 2004. How Is Migration Changing the Central Valley? San Francisco,
[http://www.ppic.org/content/pubs/RB_1104HJRB.pdf]

Public Policy Institute of California. 2004. How Are Immigrant Youth Faring in California? San Francisco, July.
[http://www.ppic.org/content/pubs/RB_704LHRB.pdf]

Hill, Laura E., Hans P. Johnson, and Sonya M. Tafoya. 2004 California's Multiracial Population. Public Policy Institute of California, San Francisco, August.
[http://www.ppic.org/content/pubs/CC_804LHCC.pdf]

Public Policy Institute of California.2004. California's Central Valley. San Francisco, November.
[http://www.ppic.org/content/pubs/JTF_CentralValleyJTF.pdf]

Johnson, Hans P. and Joseph M. Hayes. 2003. California Counts: California's Newest Neighborhoods. Public Policy Institute of California, San Francisco, August.
[http://www.ppic.org/content/pubs/CC_803HJCC.pdf]

Hill, Laura E. and Joseph M. Hayes. 2003. California's Newest Immigrants. Public Policy Institute of California, San Francisco, November.
[http://www.ppic.org/content/pubs/CC_1103LHCC.pdf]

Johnson, Hans P. 2003. California's Demographic Future. Public Policy Institute of California, San Francisco, December.
[http://www.ppic.org/content/pubs/OP_1203HJOP.pdf]

Johnson, Hans P. 2003. Maternity Before Maturity: Teen Birth Rates in California. California Counts. Public Policy Institute of California, San Francisco, February.
[http://www.ppic.org/content/pubs/CC_203HJCC.pdf]

Johnson, Hans P. 2002. California Counts: A State of Diversity: Demographic Trends in California's Regions. Public Policy Institute of California, San Francisco, May.
[http://www.ppic.org/content/pubs/CC_502HJCC.pdf]

Hill, Laura E. and Hans P. Johnson. 2002. Understanding the Future of Californians' Fertility: The Role of Immigrants. Public Policy Institute of California, San Francisco, April.
[http://www.ppic.org/content/pubs/R_402LHR.pdf]

Public Policy Institute of California. 2002. San Francisco, Immigrants in California. July.
[http://www.ppic.org/content/pubs/JTF_ImmigrantsJTF.pdf]

Sandoval, Juan Onésimo, Hans P. Johnson, and Sonya M..Tafoya. 2002. Who's Your Neighbor? Residential Segregation and Diversity in California. Public Policy Institute of California, San Francisco, August.
[http://www.ppic.org/content/pubs/CC_802JSCC.pdf]

Reed, Deborah and Amanda Bailey. 2002. California Counts: California's Young Children: Demographic, Social, and Economic Conditions. Public Policy Institute of California, San Francisco, November.
[http://www.ppic.org/content/pubs/CC_1102DRCC.pdf]

Johnson, Hans P. 2001. The Demography of California Immigrants. Public Policy Institute of California, San Francisco, Occasional Paper. March.
[http://www.ppic.org/content/pubs/OP_301HJOP.pdf]

Johnson, Hans P., Belinda I. Reyes, Laura Mameesh, and Elisa Barbour. 1999. Taking the Oath: An Analysis of Naturalization in California and the United States. Public Policy Institute of California, San Francisco, September.
[http://www.ppic.org/content/pubs/R_999HJR.pdf]

Yoshino Tajiri Hasegawa and Keith Boettcher (eds.). 1980. Success Through Perseverance : Japanese-Americans in the SJV. Japanese-American Project, SJV Library System, Japanese-American Project. Fresno, CA
Ybarra, Lea and Alex Saragoza. 1980. Nuestras Raices: The Mexican Community in the Central SJV. TEACH Project, La Raza Studies, California State University, Fresno.

Economic Growth and Development

Teitz, Michael B., Charles Dietzel, and William Fulton. 2005. Urban Development Futures in the SJV. Public Policy Institute of California, San Francisco, February.
[http://www.ppic.org/content/pubs/R_205MTR.pdf]

Shatz, Howard J. and Luis Felipe López-Calva. 2004. The Emerging Integration of the California-Mexico Economies. Public Policy Institute of California, San Francisco, August. [http://www.ppic.org/content/pubs/R_804HSR.pdf]

Johnson, Hans P., Rosa M. Moller, and Michael Dardia. 2004. In Short Supply? Cycles and Trends in California Housing. Public Policy Institute of California, San Francisco, March.
[http://www.ppic.org/content/pubs/R_304HJR.pdf]

Dowall, David E. and Jan Whittington. 2003. Making Room for the Future: Rebuilding California's Infrastructure. Report. March.
[http://www.ppic.org/content/pubs/R_303DDR.pdf]

Lewis, Paul G. and Max Neiman. 2002. Cities Under Pressure: Local Growth Controls and Residential Development Policy. Report. Public Policy Institute of California, San Francisco, January.
[http://www.ppic.org/content/pubs/R_102PLR.pdf]

Barbour, Elisa. 2002. Metropolitan Growth Planning in California, 1900-2000. Public Policy Institute of California, San Francisco, December.
[http://www.ppic.org/content/pubs/R_1202EBR.pdf]

Lewis, Paul G. and Max Neiman. 2000. Residential Development and Growth Control Policies: Survey Results from Cities in Three California Regions. Public Policy Institute of California, San Francisco, Occasional Paper. July.
[http://www.ppic.org/content/pubs/OP_700PLOP.pdf]

Orfield, Myron. 2000. Central Valley Metropatterns: Regional Challenges in California's Central Valley. A Report of the Metropolitan Area Research Corporation and the Great Valley Center. Minneapolis, MN and Modesto,

Lewis, Paul G. and Mary Sprague. 1997. Federal Transportation Policy and the Role of Metropolitan Planning Organizations in California. Report. Public Policy Institute of California, San Francisco, April.
[http://www.ppic.org/content/pubs/R_497PLR.pdf]

Education and Training

Reed, Deborah, Laura E. Hill, Christopher Jepsen, and Hans P. Johnson. 2005. Educational Progress Across Immigrant Generations in California. Public Policy Institute of California, San Francisco. September.
[http://www.ppic.org/content/pubs/R_905DRR.pdf]

Gill, Andrew M. and Duane E. Leigh. 2004. Evaluating Academic Programs in California's Community Colleges. Public Policy Institute of California, San Francisco, August.
[http://www.ppic.org/content/pubs/R_804AGR.pdf]

Danenberg, Anne, Christopher Jepsen, and Pedro Cerdán. 2002. Student and School Indicators for Youth in California's Central Valley. Report. Public Policy Institute of California, San Francisco, September.
[http://www.ppic.org/content/pubs/R_902CJR.pdf]

Public Policy Institute of California. 2002. Students, Teachers, and Schools in California's Central Valley. San Francisco, Research Brief. September. [http://www.ppic.org/content/pubs/RB_902CJRB.pdf]

Tafoya, Sonya M. 2002. The Linguistic Landscape of California Schools. Public Policy Institute of California, San Francisco, February. [http://www.ppic.org/content/pubs/CC_202STCC.pdf]

Socioeconomic Surveys of Central Valley Residents

Baldassare, Mark. 2004. PPIC Statewide Survey: Special Survey of the Central Valley. Public Policy Institute of California, San Francisco, April. [http://www.ppic.org/content/pubs/S_404MBS.pdf]

Baldassare, Mark. 2004. PPIC Statewide Survey: Special Survey on Californians and the Environment. Public Policy Institute of California, San Francisco, July. [http://www.ppic.org/content/pubs/S_704MBS.pdf]

Baldassare. 2003. PPIC Statewide Survey: Special Survey on Californians and the Environment. Public Policy Institute of California, San Francisco, July. [http://www.ppic.org/content/pubs/S_703MBS.pdf]

Baldassare, Mark. 2003. PPIC Statewide Survey: Special Survey of the Central Valley. Public Policy Institute of California, San Francisco, April. [http://www.ppic.org/content/pubs/S_403MBS.pdf]

Baldassare, Mark. 2002. PPIC Statewide Survey: Special Survey of the Central Valley. Public Policy Institute of California, San Francisco, April. [http://www.ppic.org/content/pubs/S_402MBS.pdf]

Baldassare, Mark. 2001. PPIC Statewide Survey: Special Survey of the Central Valley. Public Policy Institute of California, San Francisco, March. [http://www.ppic.org/content/pubs/S_301MBS.pdf]

Baldassare, Mark. 1999. PPIC Statewide Survey: Special Survey of the Central Valley. Public Policy Institute of California, San Francisco, November. [http://www.ppic.org/content/pubs/S_1199MBS.pdf]

Agriculture in California and the San Joaquin/Central Valley

California Agricultural Statistics Service. Summary of County Agricultural Commissioners' Reports. Annual.

Arax, Mark and Rick Wartzman. 2003. The King of California : J.G. Boswell and the making of a secret American empire. New York : Public Affairs.

Worcester, Donald. 1985. Rivers of Empire: Water, Aridity and Growth of the American West. New York: Pantheon Books.

American Farmland Trust. 1985. Eroding Choices, Emerging Issues: The Condition of California's Agricultural Land Resources. San Francisco.

Pisani, Donald J. 1984. From Family Farm to Agribusiness: The Irrigation Crusade in California and the West, 1850-1931, Berkeley and Los Angeles: University of California Press.

Stein, Walter J. 1983. California and the Dust Bowl Migration. Westport, CT. and London: Greenwood Press.

Scheuring, Anne Foley(ed.). 1983. A Guidebook to California Agriculture, Berkeley and Los Angeles: University of California Press.

Liebman, Ellen. 1983. California Farmland: A History of Large Agricultural Holdings, Totowa, NJ: Rowman and Allenheld.

Preston, William. 1981. Vanishing Landscapes: Land and Life in the Tulare Lake Basin, Berkeley and Los Angeles, CA : University of California Press.

Villarejo, Don. 1981. Getting Bigger: Large-scale Farming in California. Institute for Rural Studies,. Davis.

McWilliams, Carye. 1971. Factories in the Field. Santa Barbara: Peregrine Smith, (originally published 1935).

Goldschmidt, Walter. 1978. As You Sow: Three Studies of the Social Consequences of Agribusiness, Montclair, NJ: Allenheld Osmun. (originally published in1947).

Publications of the Center for Public Policy Studies, California State University-Stanislaus

MacDonald, Susan, Steven Hughes and Ken Entin. 2002. Visioning Progress: A Changing Stanislaus County. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/Indicators.pdf]

Entin, Kenneth, Michael Schmandt, Steven Hughes, Stacie Bradford, Kelvin Jasek-Rysdahl and Margaret Tynan. 2002. Getting To Work: An Assessment of the Mobility and Transportation Needs of Stan WORKS WtW Customers. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/Mobility%20Study.pdf]

Hughes, Steven, Kelvin Jasek-Rysdahl, and Judith J. Hendricks. 2000. Mobilizing Resources for Healthy Communities and Neighborhoods. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/MobilResources.pdf]

Hughes, Steve, Kenneth Entin, and Kelvin Jasek-Rysdahl. 2000. Welfare and Work in Merced County: Perspectives and Assessments. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/WelfareandWork.pdf]

Jasek-Rysdahl, Kelvin. 2000. Roots of Performance: An Examination of Merced County's Economic Base. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/ROOTS.pdf]

Entin, Kenneth, Steve Hughes, Kelvin Jasek-Rysdahl, Margaret Tynan, Randall Harris, and Michael Schmandt. 2000. Strategic Choices: Creating Opportunity in Merced County. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/Strategic%20Choices.pdf]

Entin, Kenneth and Kelvin Jasek-Rysdahl. 1999. Agriculture: The Engine of Our Economy. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/AGengine.PDF]

Jasek-Rysdahl, Kelvin. 1999. A Job Is Not a Job: An Input-Output Analysis of the Stanislaus County Economy. Center for Public Policy Studies, California State University-Stanislaus, Turlock.

Entin, Kenneth, Kelvin Jasek-Rysdahl, Steven Hughes, Nael Aly, Paul O'Brien, John Sumser, Randall Harris, Michael Schmandt, and Larry Giventer, 1998. Critical Links: Employment Growth, Unemployment and Welfare-to-Work in Stanislaus County. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/CRITLINK.pdf]

Hughes, Steven, Kenneth Entin, Paul O'Brien, John Sumser, Kelvin Jasek-Rysdahl, Julie Smulson. 1998. Stanislaus County Employer Survey: Perspectives and Assessments. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/Employer.pdf]

Hughes, Steven, Kelvin Jasek-Rysdahl, John Sumser, Julie Smulson 1998. Workforce Preparation for the 21st Century: A Survey of Employer Needs in Stanislaus County. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/Workforce.pdf]

Jasek-Rysdahl, Kelvin. 1998. Study of the Impact of New Firms and Firm Expansion on the Stanislaus County Economy. Center for Public Policy Studies, California State University-Stanislaus, Turlock.

Morgan, Stephen, Robert Fisk, Paul O'Brien, Elaine Peterson. 1998. Emergency Response: Stanislaus County Emergency Medical Services. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/EMS.pdf]

Hughes, Steven, Kenneth Entin, Paul O'Brien, John Sumser. 1998. Getting Back to Work: A Survey of the Unemployed, Welfare Recipients, and Service Providers in Stanislaus County. Center for Public Policy Studies, California State University-Stanislaus, Turlock.
[http://www.csustan.edu/cpps/publications/Back2wk.pdf]

Public Finance

Ransdell, Tim. 2004. Factors Determining California's Share of Federal Formula Grants, Second Edition. February.
[http://www.ppic.org/content/pubs/FF_204TRFF.pdf]

Gordon, Tracy and Fred Silva. 2003. Understanding California's Property Tax Roll: Regions, Property Types, and Sale Years. Occasional Paper. September.
[http://www.ppic.org/content/pubs/OP_903TGOP.pdf]

Great Valley Center Publications

While this organization is concerned with the entire California Central Valley, many of its analyses focus specifically on the SJV. Reports are listed in reverse chronological order. The following is not an exhaustive list of the Center's publications. All of the following reports are available for downloading in PDF at [http://www.greatvalley.org/publications/]

Corridor of Opportunity: Highway 99 as a Catalyst for Economic and Community Progress. March 2005.

The State of the Great Central Valley: Assessing the Region Via Indicators - The Economy (2005). January 2005.

Great Valley Rural Telecommunications: Designing Regulatory, Economic and Policy Recommendations for Rural Highspeed Access. January 2004.

The Entrepreneurial Sacramento Valley: Regional Economic Development Impacts and Implications. October 2004

Ethanol in California: A Feasibility Framework. May 2004.

State of the Great Central Valley: Assessing the Region via Indicators - Education and Youth Preparedness. February 2004.

Population Projections for the SJV by County (2000-2050). January 2004.

Good Medicine: Making Healthcare an Economic Priority for the SJV. December 2003.

Job Creation: Enhancing Opportunities with New Technologies. December 2003.
Renewable Energy: Strategic Opportunities for the Great Central Valley. March 2003.

ACCESS I - Connecting the SJV: Advanced Communications Connectivity for E-Commerce Strategic Success. September 2002.

Student and School Indicators for Youth in California's Central Valley. September 2002

Connecting Madera County: Assessing Our Readiness for the Networked World. May 2002.

Statistical Abstract of the SJV: Selected Statistics on Population, Economy and Environment. May 2002.

Connecting San Joaquin County: Assessing Our Readiness for the Networked World. April 2002. State of the Great Central Valley: Assessing the Region via Indicators - Community Well-Being March 2002.

Connecting Tulare County: Assessing Our Readiness for the Networked World. February 2002

Connecting Fresno County: Assessing Our Readiness for the Networked World. January 2002

Connecting Kings County: Assessing Our Readiness for the Networked World. January 2002.

Connecting Mariposa County: Assessing Our Readiness for the Networked World. January 2002.

Connecting Merced County: Assessing Our Readiness for the Networked World. January 2002.

Can City and Farm Coexist? The Agricultural Buffer Experience in California. January 2002.

Out of Sight Out of Mind: Central SJV Delinquents and the California Youth Authority. September 2001.

Connecting Kern County: Assessing Our Readiness for the Networked World. July 2001.

State of the Great Central Valley: Assessing the Region via Indicators - The Environment April 2001.

Agriculture and New Housing. January 2001.

Connecting Stanislaus County: Assessing Our Readiness for the Networked World. December 2000.

Producing A Competitive Advantage: Agri-Tech in the SJV. December 2000.

Central Valley Metropatterns: Regional Challenges in California's Central Valley. May 2000.

Connecting to Compete in the New Economy. May 2000.

Bridging the Digital Divide in the SJV: The Digital Divide Education Project of New Valley Connexions. March 2000

Economic Future of the SJV: Growing a Prosperous Economy That Benefits People and Place. January 2000.

State of the Great Central Valley: Assessing the Region via Indicators - Supporting the Economic, Social, and Environmental Wee-Being of California's Great Central Valley. July 1999.

Agricultural Land Conservation in the Great Central Valley. October 1998.

A Landscape of Choice: Strategies for Improving Community Patterns of Growth. April 1998

APPENDIX B: Data Sources

Air Quality: Congestion Mitigation and Air Quality Management Program, U.S. Department of Transportation: [http://www.fhwa.dot.gov/environment/cmaqpgs/]

Employment and Wages: U.S. Department of Labor, Bureau of Labor Statistics, [http://stats.bls.gov/cew/home.htm]

Agricultural Production: U.S. Department of Agriculture, National Agricultural Statistics Service, Census of Agriculture: [http://www.nass.usda.gov/census/]

Social Data: U.S. Department of Commerce, U.S. Census Bureau, *American Fact Finder:* [http://factfinder.census.gov/home/saff/main.html?_lang=en]

U.S. Department of Commerce, Bureau of the Census, *1980-2000 Census of Population: General Social and Economic Characteristics*, U.S. Govt. Print. Off., 1983. [http://www.census.gov]

APPENDIX C: San Joaquin Valley Governments and Institutes

Fresno County
County Seat: Fresno
County Information: 1110 Van Ness, Fresno 93721.
Telephone: (209)488-3033
Fax: (209)488-3279
County Government Website: [http://www.co.fresno.ca.us]

Kern County
County Seat: Bakersfield
County Information: 1115 Truxtun Avenue, Bakersfield 93301.
Telephone: (661)868-3140 or (800)552-5376
Fax: (661)868-3190
County Government Website: [http://www.co.kern.ca.us]

Kings County
County Seat: Hanford
County Information: Kings Government Center, 1400 West Lacey Boulevard, Hanford 93230
Telephone: (209)582-3211
Fax: (209)583-1854
County Government Website: [http://www.countyofkings.com]

Madera County
County Seat: Madera
County Information: 209 West Yosemite Avenue, Madera 93637
Telephone: (209)675-7703 Administration Office; (209)675-7700 Board of Supervisors
Fax: (209)673-3302
County Government Website: [http://www.madera-county.com]

Merced County
County Seat: Merced
County Information: 2222 M Street, Merced 95340
Telephone: (209)385-7434
Fax: (209)385-7375
County Government Website: [http://www.co.merced.ca.us]

Mariposa County
County Seat: Mariposa
County Information: Hall of Records, 4582 10th Street, Mariposa 95338
Telephone: (209)966-2007
Fax: (209)966-6496
County Government Website: [http://www.mariposacounty.or]

San Joaquin County
County Seat: Stockton
County Information: 222 East Weber Avenue, Room 704, Stockton 95202
Telephone: (209)468-3417
Fax: (209)468-3694
County Government Website: [http://www.co.san-joaquin.ca.us]

Stanislaus County
County Seat: Modesto
County Information: , Modesto
Telephone: (209)525-6333
Fax: (209)521-0692
County Government Website: [http://www.co.stanislaus.ca.us]

Tulare County
County Seat: Visalia
County Information: 2800 Burrel Avenue, Visalia 93291-4582
Telephone: (209)733-6531
Fax: (209)730-2621
County Government Website: [http://www.co.tulare.ca.us]

Tuolumne County
County Seat: Sonora
County Information: 2 South Green Street, Sonora 95370
Telephone: (209)533-5511
Fax: (209)533-5510
County Government Website: None available

Public Policy Analysis Groups

Public Policy Institute of California
500 Washington Street
San Francisco, CA 94011
Telephone: (415)291- 4400
Fax: (415)291- 4401
Website: [http://www.ppic.org]

Great Valley Center
911 13th Street
Modesto, CA
Telephone: (209)522-5103
Fax: (209)522-5116
Website: [http://www.greatvalley.org]

Center for Public Policy Studies
California State-Stanislaus
801 West Monte Vista Avenue
Turlock, California 95382
Telephone: (209) 667-3342
Fax: (209) 667-3725
Website: [http://www.csustan.edu/cpps/]

APPENDIX D: Central Appalachian Counties As Defined by USDA's Economic Research Service

Kentucky

Adair, Allen, Bell, Breathitt, Boyd (metro), Carter (metro), Clay, Clinton, Christian(metro), Cumberland, Elliott, Estill, Floyd, Greenup (metro), Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, Lincoln, McCreary, Magoffin, Martin, Menifee, Monroe, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Rowan, Russell, Wayne, Whitley, Wolfe.

Tennessee

Anderson (metro), Campbell, Claiborne, Cumberland, Fentress, Hancock, Morgan, Scott, Van Buren.

Virginia

Buchanan, Dickenson, Lee, Russell, Scott(metro), Tazewell, Wise.

West Virginia

Lincoln, Logan, McDowell, Mercer, Mingo, Monroe, Raleigh, Summers, Wyoming.

APPENDIX E: Counties of the Tennessee Valley Authority

Alabama

Cherokee, Colbert, Cullman, DeKalb, Franklin, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall, Morgan, and Winston.

Georgia

Catoosa, Chattooga, Dade, Fannin, Gordon, Murray, Towns, Union, Walker, and Whitfield.

Kentucky

Allen, Barren, Butler, Caldwell, Calloway, Carlisle, Christian, Cumberland, Edmondson, Fulton, Graves, Grayson, Hickman, Lyon, Logan, Marshall, McCracken, Metcalfe, Monroe, Muhlenberg, Ohio, Todd, Trigg, Simpson, and Warren.

Mississippi

Alcorn, Attala, Benton, Calhoun, Chickasaw, Choctaw, Clay, De Soto, Grenada, Itawamba, Kemper, Lafayette, Leake, Lee, Lowndes, Marshall, Monroe, Neshoba, Newton, Noxubee, Oktibbeha, Pontotoc, Panola, Prentiss, Quitman, Rankin, Scott, Tallahatchie, Tate, Tippah, Tishomingo, Tunica, Union, Webster, Winston, and Yalobusha.

North Carolina

Avery, Burke, Cherokee, Clay, and Watauga.

Tennessee

Anderson, Bedford, Benton, Bledsoe, Blount, Bradley, Cannon, Campbell Carroll, Carter, Cheatham, Chester, Claiborne, Clay, Cocke, Coffee, Cumberland, Davidson, Crockett, Decatur, DeKalb, Dickson, Dyer, Fayette, Fentress, Franklin, Gibson, Giles, Greene, Grainger, Grundy Hamblen, Hamilton, Hancock, Hardeman, Hawkins, Haywood, Hardin, Henderson, Henry, Hickman, Houston, Humphreys, Jackson, Jefferson, Knox, Lake, Lauderdale, Lawrence, Lewis, Lincoln, Loudon, Macon, Madison, Marion, Marshall, Maury, McMinn, McNairy, Meigs, Monroe, Montgomery, Moore, Morgan, Obion, Overton, Perry, Pickett, Polk, Putnam, Rhea, Roane, Robertson, Rutherford, Scott, Sequatchie, Sevier, Shelby, Smith, Stewart, Sullivan, Sumner, Tipton, Trousdale, Union, Unicoi, Van Buren, Warren, Washington, Wayne, Weakley, White, Williamson, and Wilson.

Virginia

Lee, Washington, and Wise.

APPENDIX F: Federal Direct Expenditures and Obligations by Individual Program and San Joaquin Valley County

Table 111. Federal Direct Expenditures and Obligations for Fresno County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**4,074,176,353**
Retirement & Disability Payments for Individuals	1,372,950,287
Other Direct Payments for Individuals	686,344,573
Direct Payments Other than for Individuals	84,321,698
Grants (Block, Formula, Project, and Cooperative Agreements)	1,139,360,214
Procurement Contracts	251,681,526
Salaries and Wages	539,518,055
Total Direct Expenditures or Obligations — Defense	**210,314,708**
Total Direct Expenditures or Obligations — Non-Defense	**3,863,861,645**
Other Federal Assistance*	
Direct Loans	403,474,275
Guaranteed/Insured Loans	489,500,081
Insurance	723,234,554

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	3,152,709
Public Safety Officers' Benefits Program	521,139
Coal Mine Workers' Compensation	43,477
Federal Employees Compensation	7,165,250
Social Insurance for Railroad Workers	14,478,614
Social Insurance for RR Workers - Unemployment & Sickness Benefits	152,126
Compensation for Service-connected Deaths for Veterans' Dependents	1,544
Pension for Non-service-connected Disability for Veterans	5,975,715

Program Name	Amount in Dollars
Pension to Veterans Surviving Spouses and Children	1,327,950
Veterans Compensation for Service-connected Disability	37,444,081
Veterans Dependency & Indemnity Compensation for SVC-connected Death	6,504,995
Pension Plan Termination Insurance	644,331
Social Security Disability Insurance	146,079,494
Social Security Retirement Insurance	637,215,795
Social Security Survivors Insurance	214,895,268
Special Benefits for Disabled Coal Miners (Black Lung)	73,814
Supplemental Security Income	162,764,740
Federal Retirement and Disability Payments — Military	40,883,000
Federal Retirement and Disability Payments — Civilian	92,431,658
Retirement and Disability Payments-coast Guard/Uniformed Employees	738,276
Retirement and Disability Payments — Foreign Service Officers	315,946
Retirement and Disability Payments — NOAA Commissioned Officer Corps	22,916
Federal Retirement and Disability Payments — Public Health Service	117,449
Retirement & Disability Payments for Individuals Total	**1,372,950,287**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	2,537,209
Food Stamps	74,795,246
Environmental Quality Incentives Program	395,226
Rent Supplements Rental Housing for Lower Income Families	52,986
Automobiles and Adaptive Equipment for Certain Disabled Veterans	74,907
Vocational Rehabilitation for Disabled Veterans	230,525
Survivors and Dependents Educational Assistance	544,585
Post-Vietnam Era Veterans' Educational Assistance	969
All Volunteer Force Educational Assistance	3,327,534
Federal Supplemental Educational Opportunity Grants	2,386,858
Federal Work Study Program	4,100,920
Federal Perkins Loan Program-federal Capital Contributions	340,644
Federal Pell Grant Program	68,077,807

Program Name	Amount in Dollars
Medicare-hospital Insurance	261,745,749
Medicare-supplementary Medical Insurance	267,733,408
Other Direct Payments for Individuals Total	**686,344,573**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	150,966
Dairy Indemnity Programs	5,309,613
Production Flexibility Payments for Contract Commodities	26,359,170
Crop Insurance	35,626,022
Market Access Program	6,626,266
Wildlife Habitat Incentive Program	6,750
Lamb Meat Adjustment Assistance Program	62,881
Public and Indian Housing	4,589,686
Public Housing Drug Elimination Program	292,128
Consolidated Tribal Government Program	173,601
Indian Self-determination Contract Support	59,987
Services to Indian Children, Elderly and Families	50,000
Refugee and Entrant Assistance-State Administered Program	491,487
Flood Insurance	21,219
U.S. Postal Service — other Expenditures (Non-salary/non-procurement)	1,847,851
Legal Services Corporation Payments	2,654,071
Direct Payments Other than for Individuals Total	**84,321,698**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Agricultural Research-Basic and Applied Research	116,582
Plant and Animal Disease, Pest Control and Animal Care	1,300,122
Crop Disaster Program	847,850
Hispanic Serving Institutions Education Grants	299,822
Community Food Projects Program	200,000
Very Low-Income Housing Repair Loans and Grants	71,500
Rural Housing Preservation Grants	100,000
Housing Application Packaging Grants	15,000

Program Name	Amount in Dollars
Outreach and Assistance for Socially Disadvantaged Farmers & Ranchers	100,000
Direct Housing-Natural Disaster Loans and Grants	7,500
National School Lunch Program	42,453,698
Special Supplemental Food Program for Women, Infants, and Children	31,143,892
Emerging Markets Program	331,300
Water and Waste Disposal System for Rural Communities	3,087,000
Community Facilities Loans and Grants	81,922
Rural Business Enterprise Grants	140,217
Quality Samples Program	50,000
Technical Assistance for Specialty Crops	561,025
Grants for Public Works & Economic Development Facilities	1,886,000
Economic Development-Technical Assistance	110,000
Educational Partnership Program	299,646
Public Telecommunications Facilities - Planning and Construction	60,000
Community Development Block Grants/Entitlement Grants	13,247,738
Emergency Shelter Grants Program	708,827
Shelter plus Care	90,443
Home Investment Partnerships Program	2,565,756
Opportunities for Youth-Youthbuild Program	98,764
Rural Housing and Economic Development	172,254
Fair Housing Initiatives Program (FHIP) Private Enforcement Initiative	70,000
Indian Community Development Block Grant Program	574,550
Demolition and Revitalization of Severely Distressed Public Housing	42,023
Indian Housing Block Grants	1,244,450
Resident Opportunity and Supportive Services	114,120
Section 8 Housing Choice Vouchers	56,145,400
Public Housing Capital Funds	2,148,005
Recreation Resource Management	5,000
Fish and Wildlife Enhancement Facilities	308,000
San Luis Unit, Central Valley Project	40,670

Program Name	Amount in Dollars
Central Valley Project Improvement Act-Title XXXIV Pub. L. 102-575	331,657
Fish and Wildlife Coordination Act, Pub. L. 85-624	22,000
Wildlife Management (Other than Sikes Act)	5,000
Soil, Water, and Air Resources	60,000
Cooperative Ecosystem System Studies Unit Awards	30,000
Fish and Wildlife Enhancement	14,782
Juvenile Justice and Delinquency Prevention Special Emphasis	99,350
Gang-free Schools and Communities-community Based Gang Intervention	102,786
Local Law Enforcement Block Grants Program	1,031,140
Executive Office for Weed and Seed	800,000
State Criminal Alien Assistance Program	737,301
Bulletproof Vest Partnership Program	37,490
Community Prosecution and Project Safe Neighborhoods	400,000
Public Safety Partnership and Community Policing Grants	-287,329
Drug-Free Communities Support Program Grants	100,000
Airport Improvement Program	14,043,599
Highway Planning and Construction	84,874,626
Federal Transit Formula Grants	8,595,525
Low-income Taxpayer Clinics	60,000
Labor Management Cooperation	70,801
Promotion of the Arts-Grants to Organizations and Individuals	116,000
Promotion of the Arts-Leadership Initiatives	50,000
Promotion of the Arts-Challenge America Grants	25,000
IMLS National Leadership Grants	894,150
Geosciences	198,106
Education and Human Resources	54,000
Microloan Demonstration Program	192,646
Air Pollution Control Program Support	1,992,920
Surveys, Studies Investigations & Special Purpose Relating Clean Air Act	232,650
Construction Grants for Wastewater Treatment Works	454,700

Program Name	Amount in Dollars
Water Pollution Control-state and Interstate Program Support	100,000
Nonpoint Source Implementation Grants	30,000
Training and Fellowships for the Environmental Protection Agency	41,500
Indian Environmental General Assistance Program	273,437
Title I Grants to Local Education Agencies	50,847,823
Special Education-Grants to States	25,892,749
Higher Education-Institutional Aid	2,685,470
Impact Aid	177,288
Trio-Student Support Services	1,005,344
Trio-Talent Search	673,757
Trio-Upward Bound	1,677,249
Indian Education-Grants to Local Educational Agencies	307,031
Trio-Educational Opportunity Centers	319,014
Rehabilitation Long-Term Training	200,000
Centers for Independent Living	272,760
Migrant Education - High School Equivalency Program	515,250
Migrant Education Program-College Assistance Migrant Program	899,003
Business and International Education Projects	164,400
Safe and Drug-Free Schools and Communities-National Programs	3,317,047
Bilingual Education-Professional Development	696,939
Fund for the Improvement of Education	2,581,559
Ronald E. McNair Post-Baccalaureate Achievement	262,797
Rehabilitation Services Demonstration & Training-Special Demo Programs	100,000
Rehabilitation Training-Experimental and Innovative Training	100,000
21st Century Community Learning Centers	1,735,915
Bilingual Education Development & Implementation Grants	168,408
Foreign Language Assistance	172,931
Parental Assistance Centers	593,941
Special Education-Parent Information Centers	181,235
Gaining Early Awareness and Readiness for Undergraduate Programs	1,193,874
Arts in Education	250,000

Program Name	Amount in Dollars
Rural Education Achievement Program	275,799
Literacy Through School Libraries	118,586
Aids Education and Training Centers	600,000
Coordinated Services & Access to Research for Women Infants Children	435,047
Community Health Centers	5,410,003
Indian Health Services Health Management Development Program	421,136
Mental Health Research Grants	357,131
Health Centers Grants for Migrant and Seasonal Farmworkers	5,481,209
Community Access Program	978,140
Mental Health National Research Service Awards for Research Training	209,139
Advanced Education Nursing Traineeships	38,839
Minority Biomedical Research Support	437,782
Education & Prevention to Reduce Sexual Abuse of Runaway Homeless and Street Youth	100,000
Temporary Assistance for Needy Families	128,443,971
Child Support Enforcement	18,588,953
Low Income Home Energy Assistance	3,316,485
CSBG Discretionary Awards-community Food and Nutrition	50,000
Head Start	27,940,471
Runaway and Homeless Youth	135,000
Social Services Block Grant	4,233,902
State Children’s Insurance Program (CHIP)	26,990,435
State Survey and Certification of Health Care Providers and Suppliers	1,076,829
Medical Assistance Program	528,606,518
Diabetes, Endocrinology and Metabolism Research	552,720
Scholarships Health Professions Students Disadvantaged Background	110,613
Healthy Start Initiative	1,399,566
Block Grants for Prevention and Treatment of Substance Abuse	6,623,594
Special Minority Initiatives	100,000
Retired and Senior Volunteer Program (RSVP)	182,596
Foster Grandparent Program	360,629

Program Name	Amount in Dollars
Senior Companion Program	737,508
Emergency Food and Shelter National Board Program	1,012,464
Assistance to Firefighters Grant	420,452
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**1,139,360,214**
Procurement Contracts	
Procurement Contracts — Dept. of Defense	119,790,708
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	100,732,851
Procurement Contracts — U.S. Postal Service	31,157,967
Procurement Contracts Total	**251,681,526**
Salaries and Wages	
Salaries and Wages — Dept. of Defense (Active Military Employees)	5,233,000
Salaries and Wages — Dept. of Defense (Inactive Military Employees)	30,890,000
Salaries and Wages — Dept. of Defense (Civilian Employees)	13,518,000
Salaries and Wages — All Fed Govt Civilian Emp Except Defense & USPS	374,682,338
Salaries and Wages — U.S. Postal Service	115,041,293
Salaries and Wages — U.S. Coast Guard (Uniformed Employees)	153,424
Salaries and Wages Total	**539,518,055**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	377,981,399
Emergency Loans	270,420
Farm Labor Housing Loans and Grants	846,080
Farm Operating Loans	255,000
Farm Ownership Loans	375,000
Very Low to Moderate Income Housing Loans	3,121,625
Very Low-income Housing Repair Loans and Grants	3,121,625
Water and Waste Disposal System for Rural Communities	1,058,500
Intermediary Relending Program	750,000
Federal Direct Student Loans	18,816,250
Direct Loans Total	**406,595,899**

Program Name	Amount in Dollars
Guaranteed/Insured Loans	
Farm Operating Loans	968,580
Farm Ownership Loans	3,080,500
Very Low to Moderate Income Housing Loans	679,900
Business and Industry Loans	2,497,000
Rehabilitation Mortgage Insurance	992,322
Mortgage Insurance Homes	407,112,411
Mortgage Insurance Purchase of Units in Condominiums	1,895,712
Property Improvement Loan Insurance for Improving Existing Structure	214,087
Small Business Loans	30,084,989
Certified Development Company Loans (504 Loans)	19,372,000
Veterans Housing Guaranteed and Insured Loans	22,602,580
Guaranteed/Insured Loans Total	**489,500,081**
Insurance	
Crop Insurance	478,365,700
Bond Guarantees for Surety Companies	999,455
Flood Insurance	243,869,399
Insurance Total	**723,234,554**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 112. Federal Direct Expenditures and Obligations for Kern County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**3,856,032,890**
Retirement & Disability Payments for Individuals	1,249,311,839
Other Direct Payments for Individuals	686,720,853
Direct Payments Other than for Individuals	49,556,643
Grants (Block, Formula, Project, and Cooperative Agreements)	768,614,402
Procurement Contracts	401,096,196
Salaries and Wages	700,732,957
Total Direct Expenditures or Obligations - Defense	**849,866,064**
Total Direct Expenditures or Obligations - Non-Defense	**3,006,166,826**
Other Federal Assistance*	
Direct Loans	311,530,161
Guaranteed/Insured Loans	702,041,520
Insurance	822,248,836

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	2,613,645
Coal Mine Workers' Compensation	83,694
Federal Employees Compensation	9,596,537
Social Insurance for Railroad Workers	19,734,579
Social Insurance for RR Workers - Unemployment & Sickness Benefits	354,264
Compensation for Service-Connected Deaths for Veterans' Dependents	1,698
Pension for Non-Service-Connected Disability for Veterans	5,539,603
Pension to Veterans Surviving Spouses and Children	1,228,626
Veterans Compensation for Service-Connected Disability	37,533,941
Veterans Dependency & Indemnity Compensation for Service-Connected Death	6,378,586
Pension Plan Termination Insurance	645,363
Social Security Disability Insurance	179,157,371

Program Name	Amount in Dollars
Social Security Retirement Insurance	522,106,273
Social Security Survivors Insurance	186,299,772
Special Benefits for Disabled Coal Miners (Black Lung)	71,814
Supplemental Security Income	114,278,631
Federal Retirement and Disability Payments — Military	53,695,000
Federal Retirement and Disability Payments — Civilian	109,018,505
Retirement and Disability Payments-Coast Guard/uniformed Employees	582,838
Retirement and Disability Payments — Foreign Service Officers	361,231
Federal Retirement and Disability Payments — Public Health Service	29,868
Retirement & Disability Payments for Individuals Total	**1,249,311,839**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	4,983,691
Food Stamps	49,366,382
Environmental Quality Incentives Program	110,349
Automobiles and Adaptive Equipment for Certain Disabled Veterans	17,411
Vocational Rehabilitation for Disabled Veterans	96,305
Survivors and Dependents Educational Assistance	421,196
Post-Vietnam Era Veterans' Educational Assistance	1,042
All Volunteer Force Educational Assistance	4,410,861
Federal Supplemental Educational Opportunity Grants	803,022
Federal Family Education Loans	585
Federal Work Study Program	1,124,767
Federal Perkins Loan Program-Federal Capital Contributions	30,921
Federal Pell Grant Program	24,184,979
Medicare-Hospital Insurance	310,513,804
Medicare-Supplementary Medical Insurance	290,655,538
Other Direct Payments for Individuals Total	**686,720,853**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	259,202
Dairy Indemnity Programs	2,152,281

Program Name	Amount in Dollars
Production Flexibility Payments for Contract Commodities	19,242,275
Conservation Reserve Program	35,192
Crop Insurance	23,039,507
Wildlife Habitat Incentive Program	31,563
Lamb Meat Adjustment Assistance Program	272,772
Public and Indian Housing	2,293,482
Public Housing Drug Elimination Program	141,333
Flood Insurance	2,603
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	1,238,109
Legal Services Corporation Payments	848,324
Direct Payments Other than for Individuals Total	**49,556,643**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Plant and Animal Disease, Pest Control and Animal Care	3,139,250
Crop Disaster Program	1,890,527
Very Low-Income Housing Repair Loans and Grants	20,357
National School Lunch Program	25,963,128
Special Supplemental Food Program for Women, Infants, and Children	25,593,084
Rural Business Enterprise Grants	182,302
Basic and Applied Scientific Research	150,000
Housing Counseling Assistance Program	25,000
Multifamily Housing Service Coordinators	9,710
Community Development Block Grants/entitlement Grants	8,688,324
Emergency Shelter Grants Program	820,878
Shelter Plus Care	19,674
Home Investment Partnerships Program	1,120,090
Community Outreach Partnership Center Program	11,713
Resident Opportunity and Supportive Services	68,435
Section 8 Housing Choice Vouchers	33,580,844
Public Housing Capital Funds	1,284,731
Recreation Resource Management	120,902

Program Name	Amount in Dollars
Urban Interface Community and Rural Fire Assistance	8,000
Fish and Wildlife Enhancement Facilities	38,070
Central Valley Project Improvement Act-Title XXXIV Pub L. 102-575	2,101,000
Fish and Wildlife Coordination Act, Pub. L. 85-624	90,000
Soil, Water, and Air Resources	61,250
Crime Lab Improvement-Combined Offender DNA Index System Backlog	237,699
Drug Court Discretionary Grant Program	-24,000
Local Law Enforcement Block Grants Program	519,246
State Criminal Alien Assistance Program	489,179
Bulletproof Vest Partnership Program	13,874
Public Safety Partnership and Community Policing Grants	-42,108
Migrant and Seasonal Farmworkers	2,047,047
Airport Improvement Program	12,091,183
Highway Planning and Construction	54,572,960
Federal Transit Formula Grants	3,153,121
Research Grants for the Space Program	60,000
Geosciences	125,877
Brownfields Assessment and Cleanup Cooperative Agreements	1,000,000
Fossil Energy Research and Development	1,467,034
Title I Grants to Local Education Agencies	36,086,843
Special Education-Grants to States	16,487,977
Higher Education-Institutional Aid	1,489,369
Impact Aid	6,712,921
Trio-Student Support Services	506,287
Trio-Talent Search	338,603
Trio-Upward Bound	290,192
Centers for Independent Living	308,334
Migrant Education - High School Equivalency Program	479,440
Migrant Education Program-College Assistance Migrant Program	465,000

Program Name	Amount in Dollars
Safe and Drug-Free Schools and Communities-National Programs	421,427
Bilingual Education-Professional Development	181,782
Fund for the Improvement of Education	1,093,625
Ronald E. Mcnair Post-Baccalaureate Achievement	220,000
Bilingual Education Development & Implementation Grants	99,890
Gaining Early Awareness and Readiness for Undergraduate Programs	820,115
Child Care Access Means Parents in School	65,046
Rural Education Achievement Program	340,796
Literacy Through School Libraries	220,336
Aids Education and Training Centers	353,851
Health Center Grants for Homeless Populations	563,114
Nursing Workforce Diversity	174,298
Community Health Centers	3,994,249
Indian Health Services Health Management Development Program	202,928
Special Diabetes Program for Indians-Diabetes Prev and Treat. Projects	59,472
Health Centers Grants for Migrant and Seasonal Farmworkers	2,488,216
Advanced Education Nursing Traineeships	34,113
Temporary Assistance for Needy Families	75,605,940
Child Support Enforcement	10,942,010
Low Income Home Energy Assistance	2,300,144
Head Start	21,315,432
Social Services Block Grant	3,397,208
State Children’s Insurance Program (Chip)	19,054,442
State Survey and Certification of Health Care Providers and Suppliers	760,209
Medical Assistance Program	373,180,438
Medical Library Assistance	216,854
Grants for Residency Training in General Internal Med And/or Gen Pediatrics	103,793
Scholarships Health Professions Students Disadvantaged Background	67,596

Program Name	Amount in Dollars
Block Grants for Prevention and Treatment of Substance Abuse	5,544,093
Retired and Senior Volunteer Program (RSVP)	56,986
Emergency Food and Shelter National Board Program	612,610
Assistance to Firefighters Grant	260,042
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**768,614,402**
Procurement Contracts	
Procurement Contracts — Dept of Defense	262,661,064
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	117,558,468
Procurement Contracts — U.S. Postal Service	20,876,664
Procurement Contracts Total	**401,096,196**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Active Military Employees)	160,815,000
Salaries and Wages — Dept of Defense (Inactive Military Employees)	3,696,000
Salaries and Wages — Dept of Defense (Civilian Employees)	368,849,000
Salaries and Wages-All Fed Govt Civilian Emp Except Defense & USPS	90,292,239
Salaries and Wages — U.S. Postal Service	77,080,718
Salaries and Wages Total	**700,732,957**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	277,599,119
Farm Labor Housing Loans and Grants	3,250,000
Farm Operating Loans	143,960
Very Low to Moderate Income Housing Loans	2,854,250
Physical Disaster Loans	317,600
Federal Direct Student Loans	27,365,232
Direct Loans Total	**311,530,161**
Guaranteed/insured Loans	
Farm Operating Loans	14,000
Farm Ownership Loans	650,000
Very Low to Moderate Income Housing Loans	132,000

Program Name	Amount in Dollars
Business and Industry Loans	1,582,000
Rehabilitation Mortgage Insurance	1,474,396
Mortgage Insurance Homes	623,903,367
Mortgage Insurance Purchase of Units in Condominiums	861,179
Property Improvement Loan Insurance for Improving Existing Structure	-56,968
Small Business Loans	15,027,143
Certified Development Company Loans (504 Loans)	13,478,000
Veterans Housing Guaranteed and Insured Loans	44,976,403
Guaranteed/insured Loans Total	**702,041,520**
Insurance	
Crop Insurance	391,299,868
Bond Guarantees for Surety Companies	232,330
Flood Insurance	430,716,638
Insurance Total	**822,248,836**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 113. Federal Direct Expenditures and Obligations for Kings County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**776,751,231**
Retirement & Disability Payments for Individuals	199,698,601
Other Direct Payments for Individuals	88,326,136
Direct Payments Other than for Individuals	32,774,010
Grants (Block, Formula, Project, and Cooperative Agreements)	144,740,233
Procurement Contracts	26,958,698
Salaries and Wages	284,253,553
Total Direct Expenditures or Obligations - Defense	**303,643,643**
Total Direct Expenditures or Obligations - Non-Defense	**473,107,588**
Other Federal Assistance*	
Direct Loans	2,004,602
Guaranteed/Insured Loans	91,770,792
Insurance	109,310,283

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	3,517,799
Coal Mine Workers' Compensation	6,344
Federal Employees Compensation	803,974
Social Insurance for Railroad Workers	688,913
Social Insurance for RR Workers - Unemployment & Sickness Benefits	12,252
Pension for Non-Service-Connected Disability for Veterans	696,321
Pension to Veterans Surviving Spouses and Children	184,666
Veterans Compensation for Service-Connected Disability	9,725,806
Veterans Dependency & Indemnity Compensation for Service-Connected Death	1,537,627
Pension Plan Termination Insurance	75,440
Social Security Disability Insurance	21,928,239
Social Security Retirement Insurance	73,885,320

Program Name	Amount in Dollars
Social Security Survivors Insurance	28,590,757
Special Benefits for Disabled Coal Miners (Black Lung)	7,980
Supplemental Security Income	17,017,268
Federal Retirement and Disability Payments — Military	27,809,000
Federal Retirement and Disability Payments — Civilian	13,138,723
Retirement and Disability Payments-Coast Guard/uniformed Employees	72,172
Retirement & Disability Payments for Individuals Total	**199,698,601**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	1,898,520
Food Stamps	7,970,926
Environmental Quality Incentives Program	269,188
Indian Education Assistance to Schools	8,075
Automobiles and Adaptive Equipment for Certain Disabled Veterans	19,225
Vocational Rehabilitation for Disabled Veterans	132,154
Survivors and Dependents Educational Assistance	188,754
Post-Vietnam Era Veterans' Educational Assistance	252
All Volunteer Force Educational Assistance	1,557,680
Medicare-Hospital Insurance	41,459,698
Medicare-Supplementary Medical Insurance	34,821,664
Other Direct Payments for Individuals Total	**88,326,136**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	680,249
Dairy Indemnity Programs	7,922,344
Production Flexibility Payments for Contract Commodities	15,299,105
Conservation Reserve Program	8,512
Wetlands Reserve Program	1,405,600
Crop Insurance	6,857,763
Lamb Meat Adjustment Assistance Program	21,852
Public and Indian Housing	461,931
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	116,654

Program Name	Amount in Dollars
Direct Payments Other than for Individuals	**32,774,010**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Plant and Animal Disease, Pest Control and Animal Care	146,069
Crop Disaster Program	248,919
Very Low-Income Housing Repair Loans and Grants	93,695
National School Lunch Program	3,905,335
Special Supplemental Food Program for Women, Infants, and Children	3,882,437
Community Facilities Loans and Grants	18,000
Grants for Public Works & Economic Development Facilities	2,080,000
Military Medical Research and Development	98,000
Section 8 Housing Choice Vouchers	4,184,565
Public Housing Capital Funds	160,093
Outdoor Recreation-Acquisition, Development and Planning	102,000
Gang-Free Schools and Communities-Community Based Gang Intervention	123,686
Local Law Enforcement Block Grants Program	22,168
State Criminal Alien Assistance Program	110,378
Bulletproof Vest Partnership Program	3,568
Public Safety Partnership and Community Policing Grants	260,657
Airport Improvement Program	150,000
Highway Planning and Construction	9,435,558
Water Pollution Control-State and Interstate Program Support	39,640
Surveys, Studies Demos & Special Purpose Grants	35,100
Indian Environmental General Assistance Program	75,000
Title I Grants to Local Education Agencies	6,890,156
Special Education-Grants to States	4,538,098
Impact Aid	5,459,863
Indian Education-Grants to Local Educational Agencies	37,417
Safe and Drug-Free Schools and Communities-National Programs	967,810
21st Century Community Learning Centers	719,362
Arts in Education	315,000

Program Name	Amount in Dollars
Rural Education Achievement Program	204,479
Temporary Assistance for Needy Families	17,300,615
Child Support Enforcement	2,503,818
Low Income Home Energy Assistance	579,493
Head Start	5,753,885
Social Services Block Grant	342,502
State Children's Insurance Program (Chip)	3,532,168
State Survey and Certification of Health Care Providers and Suppliers	140,922
Medical Assistance Program	69,177,363
Block Grants for Prevention and Treatment of Substance Abuse	980,484
Foster Grandparent Program	-654
Emergency Food and Shelter National Board Program	122,584
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**144,740,233**
Procurement Contracts	
Procurement Contracts — Dept of Defense	1,916,643
Procurement Contracts — All Fed Govt Agencies Other than Defense & Usps	23,075,054
Procurement Contracts — U.S. Postal Service	1,967,001
Procurement Contracts Total	**26,958,698**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Active Military Employees)	244,908,000
Salaries and Wages — Dept of Defense (Inactive Military Employees)	1,368,000
Salaries and Wages — Dept of Defense (Civilian Employees)	27,544,000
Salaries and Wages — All Fed Govt Civilian Employees Except Defense & USPS	3,171,000
Salaries and Wages — U.S. Postal Service	7,262,553
Salaries and Wages Total	**284,253,553**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	1,001,602
Farm Operating Loans	544,000
Very Low to Moderate Income Housing Loans	459,000

Program Name	Amount in Dollars
Direct Loans Total	**2,004,602**
Guaranteed/insured Loans	
Farm Operating Loans	1,860,150
Business and Industry Loans	5,186,600
Rehabilitation Mortgage Insurance	217,255
Mortgage Insurance Homes	62,277,036
Small Business Loans	3,064,525
Certified Development Company Loans (504 Loans)	669,000
Veterans Housing Guaranteed and Insured Loans	18,496,226
Guaranteed/insured Loans Total	**91,770,792**
Insurance	
Crop Insurance	88,171,523
Bond Guarantees for Surety Companies	67,255
Flood Insurance	21,071,505
Insurance Total	**109,310,283**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 114. Federal Direct Expenditures and Obligations for Madera County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**522,283,699**
Retirement & Disability Payments for Individuals	232,626,631
Other Direct Payments for Individuals	114,296,819
Direct Payments Other than for Individuals	14,670,723
Grants (Block, Formula, Project, and Cooperative Agreements)	138,528,339
Procurement Contracts	6,652,940
Salaries and Wages	15,508,247
Total Direct Expenditures or Obligations - Defense	**8,732,221**
Total Direct Expenditures or Obligations - Non-Defense	**513,551,478**
Other Federal Assistance*	
Direct Loans	2,263,010
Guaranteed/Insured Loans	69,353,344
Insurance	207,437,128

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	1,639,727
Federal Employees Compensation	1,127,614
Social Insurance for Railroad Workers	2,014,416
Social Insurance for RR Workers - Unemployment & Sickness Benefits	6,904
Compensation for Service-Connected Deaths for Veterans' Dependents	552
Pension for Non-Service-Connected Disability for Veterans	910,016
Pension to Veterans Surviving Spouses and Children	188,534
Veterans Compensation for Service-Connected Disability	9,933,019
Veterans Dependency & Indemnity Compensation for Service-Connected Death	1,641,479
Pension Plan Termination Insurance	75,155
Social Security Disability Insurance	28,854,386
Social Security Retirement Insurance	116,539,214

Program Name	Amount in Dollars
Social Security Survivors Insurance	33,824,347
Special Benefits for Disabled Coal Miners (Black Lung)	10,974
Supplemental Security Income	14,399,805
Federal Retirement and Disability Payments — Military	7,353,000
Federal Retirement and Disability Payments — Civilian	13,763,145
Retirement and Disability Payments-Coast Guard/uniformed Employees	120,836
Retirement and Disability Payments — Foreign Service Officers	205,495
Federal Retirement and Disability Payments — Public Health Service	18,013
Retirement & Disability Payments for Individuals Total	**232,626,631**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	2,002,473
Food Stamps	7,504,001
Environmental Quality Incentives Program	99,435
Indian Social Services-Welfare Assistance	9,500
Indian Education Assistance to Schools	9,000
Automobiles and Adaptive Equipment for Certain Disabled Veterans	4,217
Vocational Rehabilitation for Disabled Veterans	33,911
Survivors and Dependents Educational Assistance	149,155
Post-Vietnam Era Veterans' Educational Assistance	44
All Volunteer Force Educational Assistance	625,252
Federal Supplemental Educational Opportunity Grants	5,431
Federal Pell Grant Program	79,660
Medicare-Hospital Insurance	52,315,653
Medicare-Supplementary Medical Insurance	51,459,087
Other Direct Payments for Individuals Total	**114,296,819**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	39,365
Dairy Indemnity Programs	2,826,756
Production Flexibility Payments for Contract Commodities	4,203,025
Crop Insurance	6,658,507

Program Name	Amount in Dollars
Lamb Meat Adjustment Assistance Program	44,623
Public and Indian Housing	398,138
Public Housing Drug Elimination Program	41,630
Aid to Tribal Governments	1,114
Consolidated Tribal Government Program	5
Indian Self-Determination Contract Support	279,142
Services to Indian Children, Elderly and Families	50,000
U.S. Postal Service-Other Expenditures (Non-salary/non-procurement)	128,418
Direct Payments Other than for Individuals Total	**14,670,723**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Crop Disaster Program	23,603
National School Lunch Program	3,880,499
Special Supplemental Food Program for Women, Infants, and Children	3,601,585
Rural Business Enterprise Grants	50,000
Community Development Block Grants/entitlement Grants	1,023,103
Rural Housing and Economic Development	51,615
Indian Community Development Block Grant Program	33,553
Indian Housing Block Grants	375,831
Section 8 Housing Choice Vouchers	2,676,617
Public Housing Capital Funds	102,402
Drug Court Discretionary Grant Program	200,727
Local Law Enforcement Block Grants Program	110,249
Bulletproof Vest Partnership Program	3,003
Public Safety Partnership and Community Policing Grants	-1
Airport Improvement Program	315,000
Highway Planning and Construction	10,283,491
Native American Library Services	8,000
Water Pollution Control-State and Interstate Program Support	47,500
Nonpoint Source Implementation Grants	30,000
Brownfields Assessment and Cleanup Cooperative Agreements	199,555

Program Name	Amount in Dollars
Indian Environmental General Assistance Program	195,000
Title I Grants to Local Education Agencies	6,756,520
Special Education-Grants to States	3,032,497
Indian Education-grants to Local Educational Agencies	76,289
Even Start-Indian Tribes and Tribal Organizations	194,832
Bilingual Education Development & Implementation Grants	174,038
Rural Education Achievement Program	57,865
Special Program For the Aging-Title VI, Grants to Indians Tribes & Hawaii	76,780
Nutrition Services Incentive Program	1,804
Community Health Centers	1,972,208
Health Centers Grants for Migrant and Seasonal Farmworkers	1,723,344
Temporary Assistance for Needy Families	13,331,210
Child Support Enforcement	1,929,349
Low Income Home Energy Assistance	579,493
Child Care and Development Block Grant	33,530
Child Care Mandatory & Matching Funds of the Child Care & Dev. Fund	23,059
Head Start	3,087,922
Native American Program	84,273
Social Services Block Grant	349,611
State Children's Insurance Program (Chip)	3,902,121
State Survey and Certification of Health Care Providers and Suppliers	155,682
Medical Assistance Program	76,422,868
Health Care and Other Facilities	147,535
Block Grants for Prevention and Treatment of Substance Abuse	1,009,558
Emergency Food and Shelter National Board Program	129,162
Assistance to Firefighters Grant	65,457
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**138,528,339**
Procurement Contracts	
Procurement Contracts-Dept of Defense	355,221

Program Name	Amount in Dollars
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	4,132,365
Procurement Contracts — U.S. Postal Service	2,165,354
Procurement Contracts Total	**6,652,940**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Inactive Military Employees)	451,000
Salaries and Wages — Dept of Defense (Civilian Employees)	573,000
Salaries and Wages — All Fed Govt Civilian Employees Except Defense & USPS	6,489,335
Salaries and Wages-U.S.Postal Service	7,994,912
Salaries and Wages Total	**15,508,247**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	730,280
Emergency Loans	67,630
Farm Operating Loans	1,293,100
Farm Ownership Loans	172,000
Direct Loans Total	**2,263,010**
Guaranteed/insured Loans	
Farm Operating Loans	174,000
Farm Ownership Loans	2,179,000
Very Low to Moderate Income Housing Loans	140,000
Business and Industry Loans	6,300,000
Rehabilitation Mortgage Insurance	524,094
Mortgage Insurance Homes	50,367,760
Mortgage Insurance Purchase of Units in Condominiums	78,120
Property Improvement Loan Insurance for Improving Existing Structure	7,450
Small Business Loans	5,179,090
Certified Development Company Loans (504 Loans)	1,343,000
Veterans Housing Guaranteed and Insured Loans	3,060,830
Guaranteed/insured Loans Total	**69,353,344**

Program Name	Amount in Dollars
Insurance	
Crop Insurance	110,076,905
Flood Insurance	97,360,223
Insurance Total	**207,437,128**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 115. Federal Direct Expenditures and Obligations for Merced County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**96,602,592**
Retirement & Disability Payments for Individuals	**386,083,265**
Other Direct Payments for Individuals	180,445,040
Direct Payments Other than for Individuals	38,631,815
Grants (Block, Formula, Project, and Cooperative Agreements)	290,308,653
Procurement Contracts	22,694,398
Salaries and Wages	46,339,421
Total Direct Expenditures or Obligations - Defense	48,324,933
Total Direct Expenditures or Obligations - Non-Defense	916,177,659
Other Federal Assistance*	
Direct Loans	16,009,304
Guaranteed/Insured Loans	117,124,228
Insurance	787,709,951

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	7,890,240
Coal Mine Workers' Compensation	8,481
Federal Employees Compensation	1,699,561
Social Insurance for Railroad Workers	1,861,268
Social Insurance for RR Workers - Unemployment & Sickness Benefits	46,179
Compensation for Service-Connected Deaths for Veterans' Dependents	816
Pension for Non-Service-Connected Disability for Veterans	831,887
Pension to Veterans Surviving Spouses and Children	267,427
Veterans Compensation for Service-Connected Disability	13,838,992
Veterans Dependency & Indemnity Compensation for Service-Connected Death	3,204,545
Pension Plan Termination Insurance	128,317
Social Security Disability Insurance	43,405,055

Program Name	Amount in Dollars
Social Security Retirement Insurance	156,576,496
Social Security Survivors Insurance	53,100,523
Special Benefits for Disabled Coal Miners (Black Lung)	11,969
Supplemental Security Income	42,830,634
Federal Retirement and Disability Payments — Military	42,486,000
Federal Retirement and Disability Payments — Civilian	17,758,672
Retirement and Disability Payments-Coast Guard/uniformed Employees	68,232
Retirement and Disability Payments — Foreign Service Officers	67,971
Retirement & Disability Payments for Individuals Total	**386,083,265**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	1,196,506
Food Stamps	22,333,356
Environmental Quality Incentives Program	532,375
Automobiles and Adaptive Equipment for Certain Disabled Veterans	2,410
Vocational Rehabilitation for Disabled Veterans	63,939
Survivors and Dependents Educational Assistance	178,820
Post-Vietnam Era Veterans' Educational Assistance	118
All Volunteer Force Educational Assistance	878,856
Federal Supplemental Educational Opportunity Grants	438,670
Federal Family Education Loans	17
Federal Work Study Program	464,548
Federal Pell Grant Program	6,655,879
Medicare-Hospital Insurance	77,057,486
Medicare-Supplementary Medical Insurance	70,642,060
Other Direct Payments for Individuals Total	**180,445,040**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	3,165,160
Dairy Indemnity Programs	16,478,391
Production Flexibility Payments for Contract Commodities	11,554,604
Conservation Reserve Program	147,121
Wetlands Reserve Program	598,000

Program Name	Amount in Dollars
Crop Insurance	5,652,826
Wildlife Habitat Incentive Program	45,015
Lamb Meat Adjustment Assistance Program	87,615
Public and Indian Housing	231,468
Public Housing Drug Elimination Program	45,173
Refugee and Entrant Assistance-State Administered Program	350,000
U.s. Postal Service — Other Expenditures (Non-salary/non-procurement)	276,442
Direct Payments Other than for Individuals Total	**38,631,815**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Plant and Animal Disease, Pest Control and Animal Care	381,872
Crop Disaster Program	276,671
Very Low-Income Housing Repair Loans and Grants	27,140
National School Lunch Program	11,542,157
Special Supplemental Food Program for Women, Infants, and Children	8,543,397
Emergency Community Water Assistance Grants	18,000
Community Facilities Loans and Grants	50,000
Rural Cooperative Development Grants	134,120
Community Development Block Grants/entitlement Grants	565,551
Home Investment Partnerships Program	877,263
Opportunities for Youth-YouthBuild Program	91,612
Community Outreach Partnership Center Program	57,741
Resident Opportunity and Supportive Services	19,993
Section 8 Housing Choice Vouchers	7,062,555
Public Housing Capital Funds	270,199
Fish and Wildlife Enhancement Facilities	90,000
Soil and Water Conservation	60,000
O & M of Irrigation Facilities	314,844
Central Valley Project Improvement Act-Title XXXIV Pub L 102-575	6,588,482
Gang-free Schools and Communities-Community Based Gang Intervention	19,810
Local Law Enforcement Block Grants Program	233,833

Program Name	Amount in Dollars
State Criminal Alien Assistance Program	103,398
Bulletproof Vest Partnership Program	21,614
Community Prosecution and Project Safe Neighborhoods	200,000
Public Safety Partnership and Community Policing Grants	15,000
Migrant and Seasonal Farmworkers	1,872,136
Airport Improvement Program	3,915,323
Highway Planning and Construction	18,605,288
Federal Transit Formula Grants	1,079,570
Mathematical and Physical Sciences	251,365
Polar Programs	197,936
Surveys, Studies, Investigations and Special Purpose Grants	500,000
Office of Science Financial Assistance Program	175,000
Title I Grants to Local Education Agencies	14,985,795
Special Education-Grants to States	8,334,484
Higher Education-Institutional Aid	379,162
Fund for the Improvement of Postsecondary Education	496,750
Rehabilitation Services-Service Projects	160,000
21st Century Community Learning Centers	387,926
Gaining Early Awareness and Readiness for Undergraduate Programs	626,324
Child Care Access Means Parents in School	51,947
Rural Education Achievement Program	211,717
Early Reading First	2,437,019
Health Center Grants for Homeless Populations	539,104
Community Health Centers	1,945,207
Health Centers Grants for Migrant and Seasonal Farmworkers	2,503,831
Community Access Program	964,088
Temporary Assistance for Needy Families	35,125,494
Child Support Enforcement	5,083,510
Low Income Home Energy Assistance	882,614
Head Start	7,840,929
Social Services Block Grant	944,369

Program Name	Amount in Dollars
State Children's Insurance Program (Chip)	6,800,834
State Survey and Certification of Health Care Providers and Suppliers	271,331
Medical Assistance Program	133,194,038
Block Grants for Prevention and Treatment of Substance Abuse	1,629,927
Emergency Food and Shelter National Board Program	230,683
Assistance to Firefighters Grant	119,700
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**290,308,653**
Procurement Contracts	
Procurement Contracts — Dept of Defense	5,470,933
Procurement Contracts — All Fed Govt Agencies Other than Defense & Usps	12,562,167
Procurement Contracts — U.S. Postal Service	4,661,298
Procurement Contracts Total	**22,694,398**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Active Military Employees)	120,000
Salaries and Wages — Dept of Defense (Civilian Employees)	248,000
Salaries and Wages — All Fed Govt Civilian Emp Except Defense & USPS	28,761,000
Salaries and Wages — U.S. Postal Service	17,210,421
Salaries and Wages Total	**46,339,421**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	6,396,705
Farm Labor Housing Loans and Grants	3,000,000
Farm Operating Loans	2,338,960
Farm Ownership Loans	200,000
Very Low to Moderate Income Housing Loans	3,568,543
Very Low-Income Housing Repair Loans and Grants	32,996
Community Facilities Loans and Grants	439,400
Physical Disaster Loans	32,700
Direct Loans Total	**16,009,304**
Guaranteed/insured Loans	
Farm Operating Loans	2,068,120

Program Name	Amount in Dollars
Farm Ownership Loans	2,342,000
Very Low to Moderate Income Housing Loans	954,603
Rehabilitation Mortgage Insurance	228,660
Mortgage Insurance Homes	95,530,551
Mortgage Insurance Purchase of Units in Condominiums	332,796
Small Business Loans	4,644,975
Certified Development Company Loans (504 Loans)	524,000
Veterans Housing Guaranteed and Insured Loans	10,498,523
Guaranteed/insured Loans Total	**117,124,228**
Insurance	
Crop Insurance	127,164,642
Flood Insurance	660,545,309
Insurance Total	**787,709,951**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 116. Federal Direct Expenditures and Obligations for San Joaquin County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**2,675,054,152**
Retirement & Disability Payments for Individuals	1,104,466,265
Other Direct Payments for Individuals	531,503,300
Direct Payments Other than for Individuals	36,633,614
Grants (Block, Formula, Project, and Cooperative Agreements)	730,493,373
Procurement Contracts	94,810,923
Salaries and Wages	177,146,677
Total Direct Expenditures or Obligations - Defense	**152,029,525**
Total Direct Expenditures or Obligations - Non-Defense	**2,523,024,627**
Other Federal Assistance*	
Direct Loans	76,290,537
Guaranteed/Insured Loans	566,037,372
Insurance	1,060,457,574

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	4,207,415
Longshore and Harbor Workers' Compensation	7,172
Coal Mine Workers' Compensation	44,376
Federal Employees Compensation	6,640,733
Social Insurance for Railroad Workers	16,214,281
Social Insurance for RR Workers - Unemployment & Sickness Benefits	354,165
Compensation for Service-Connected Deaths for Veterans' Dependents	435
Pension for Non-Service-Connected Disability for Veterans	3,737,297
Pension to Veterans Surviving Spouses and Children	951,696
Veterans Compensation for Service-Connected Disability	31,443,143
Veterans Dependency & Indemnity Compensation for Service-Connected Death	5,401,739
Pension Plan Termination Insurance	513,414

Program Name	Amount in Dollars
Social Security Disability Insurance	140,628,615
Social Security Retirement Insurance	482,281,934
Social Security Survivors Insurance	162,261,936
Special Benefits for Disabled Coal Miners (Black Lung)	59,832
Supplemental Security Income	117,581,751
Federal Retirement and Disability Payments — Military	35,331,000
Federal Retirement and Disability Payments — Civilian	95,522,841
Retirement and Disability Payments-coast Guard/uniformed Employees	1,171,689
Retirement and Disability Payments — Foreign Service Officers	108,909
Federal Retirement and Disability Payments — Public Health Service	1,892
Retirement & Disability Payments for Individuals Total	**1,104,466,265**
Other Direct Payments for Individuals	
Food Stamps	40,654,992
Environmental Quality Incentives Program	372,897
Indian Education Assistance to Schools	2,550
Automobiles and Adaptive Equipment for Certain Disabled Veterans	16,755
Vocational Rehabilitation for Disabled Veterans	205,846
Survivors and Dependents Educational Assistance	470,995
Post-Vietnam Era Veterans' Educational Assistance	698
All Volunteer Force Educational Assistance	2,189,741
Federal Supplemental Educational Opportunity Grants	1,691,560
Federal Family Education Loans	2,179
Federal Work Study Program	2,370,816
Federal Perkins Loan Program-Federal Capital Contributions	255,896
Federal Pell Grant Program	20,714,962
Medicare-Hospital Insurance	241,723,897
Medicare-Supplementary Medical Insurance	220,829,516
Other Direct Payments for Individuals Total	531,503,300
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	226,842

Program Name	Amount in Dollars
Dairy Indemnity Programs	7,295,516
Production Flexibility Payments for Contract Commodities	3,683,379
Wetlands Reserve Program	501,000
Crop Insurance	18,564,534
Market Access Program	244,922
Wildlife Habitat Incentive Program	25,000
Lamb Meat Adjustment Assistance Program	74,583
Wool and Mohair Loss Assistance Program	8,668
Public and Indian Housing	3,943,022
Public Housing Drug Elimination Program	184,149
Indian Self-Determination Contract Support	79,191
Refugee and Entrant Assistance-State Administered Program	500,000
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	1,302,808
Direct Payments Other than for Individuals Total	**36,633,614**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Plant and Animal Disease, Pest Control and Animal Care	326,022
Crop Disaster Program	1,482,838
Rural Self-Help Housing Technical Assistance	480,000
National School Lunch Program	16,623,024
Special Supplemental Food Program for Women, Infants, and Children	12,106,420
Emerging Markets Program	20,000
Rural Cooperative Development Grants	834,900
Housing Counseling Assistance Program	11,866
Community Development Block Grants/entitlement Grants	10,171,758
Emergency Shelter Grants Program	1,721,484
Shelter plus Care	477,667
Home Investment Partnerships Program	2,386,497
Community Development Block Grants/economic Development Initiative	500,000
Community Outreach Partnership Center Program	55,407
Section 8 Housing Choice Vouchers	25,405,791

Program Name	Amount in Dollars
Public Housing Capital Funds	971,972
Outdoor Recreation-Acquisition, Development and Planning	51,000
Youth Programs	187,500
Fish and Wildlife Enhancement Facilities	933,000
Central Valley Project Improvement Act-Title XXXIV Pub L 102-575	15,013
California Bay Delta Environmental Enhancement, Pub.L. 104-333	-444,044
Fish and Wildlife Enhancement	243,202
Gang-Free Schools and Communities-Community Based Gang Intervention	74,800
Local Law Enforcement Block Grants Program	709,558
State Criminal Alien Assistance Program	180,995
Bulletproof Vest Partnership Program	52,456
Community Prosecution and Project Safe Neighborhoods	567,000
Public Safety Partnership and Community Policing Grants	-175,000
Airport Improvement Program	1,750,000
Highway Planning and Construction	24,715,983
Federal Transit-Capital Investment Grants	3,941,245
Federal Transit Formula Grants	9,946,568
Promotion of the Arts-Leadership Initiatives	10,000
Museum Assessment Program	1,775
Imls National Leadership Grants	99,350
Biological Sciences	398,651
Education and Human Resources	490,544
Surveys, studies, investigations and Special Purpose Grants	1,925,400
Surveys, Studies, Investigations, Demo Ed Outreach & Special Projects	49,000
Title I Grants to Local Education Agencies	25,806,660
Special Education-Grants to States	17,587,579
Impact Aid	32,386
Trio-Student Support Services	263,167
Indian Education-Grants to Local Educational Agencies	435,496
Fund for the Improvement of Postsecondary Education	397,400

Program Name	Amount in Dollars
Migrant Education - High School Equivalency Program	389,024
Even Start - Migrant Education	250,932
Fund for the Improvement of Education	843,806
21st Century Community Learning Centers	354,619
Bilingual Education: Systemwide Improvement Grants	630,150
Gaining Early Awareness and Readiness for Undergraduate Programs	708,896
Transition to Teaching	316,430
Arts in Education	205,004
Rural Education Achievement Program	135,655
Aids Education and Training Centers	449,360
Health Center Grants for Homeless Populations	508,250
Community Health Centers	3,075,822
Health Centers Grants for Migrant and Seasonal Farmworkers	1,514,658
Community Access Program	128,334
Transitional Living for Homeless Youth	400,000
Educ & Prev to Reduce Sexual Abuse of Runaway Homeless and Street Youth	100,000
Temporary Assistance for Needy Families	93,206,134
Child Support Enforcement	13,489,184
Low Income Home Energy Assistance	1,961,363
Head Start	20,630,705
Runaway and Homeless Youth	160,000
Social Services Block Grant	2,743,968
State Children’s Insurance Program (Chip)	20,306,172
State Survey and Certification of Health Care Providers and Suppliers	810,150
Medical Assistance Program	397,695,508
Heart and Vascular Diseases Research	200,000
Allergy, Immunology and Transplantation Research	122,024
Grants for Residency Training in General Internal Med And/or Gen Pediatrics	146,800
Block Grants for Prevention and Treatment of Substance Abuse	4,495,574

Program Name	Amount in Dollars
Retired and Senior Volunteer Program (RSVP)	56,668
Emergency Food and Shelter National Board Program	484,256
Assistance to Firefighters Grant	151,597
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**730,493,373**
Procurement Contracts	
Procurement Contracts — Dept of Defense	44,876,525
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	27,966,792
Procurement Contracts — U.S. Postal Service	21,967,606
Procurement Contracts Total	**94,810,923**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Active Military Employees)	1,686,000
Salaries and Wages — Dept of Defense (Inactive Military Employees)	781,000
Salaries and Wages — Dept of Defense (Civilian Employees)	69,355,000
Salaries and Wages — All Fed Govt Civilian Employee Except Defense & USPS	24,215,988
Salaries and Wages — U.S. Postal Service	81,108,689
Salaries and Wages Total	**177,146,677**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	1,199,721
Farm Labor Housing Loans and Grants	750,000
Farm Operating Loans	1,259,500
Farm Ownership Loans	561,000
Federal Direct Student Loans	72,520,316
Direct Loans Total	**76,290,537**
Guaranteed/insured Loans	
Farm Operating Loans	6,139,115
Farm Ownership Loans	1,265,400
Business and Industry Loans	9,277,000
Mortgage Insurance Homes	483,761,258

Program Name	Amount in Dollars
Mortgage Insurance Homes for Low and Moderate Income Families	660,228
Mortgage Insurance Purchase of Units in Condominiums	7,195,131
Small Business Loans	18,236,068
Certified Development Company Loans (504 Loans)	19,726,000
Veterans Housing Guaranteed and Insured Loans	19,777,172
Guaranteed/insured Loans Total	**566,037,372**
Insurance	
Crop Insurance	261,467,988
Bond Guarantees for Surety Companies	80,748
Flood Insurance	798,908,838
Insurance Total	**1,060,457,574**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 117. Federal Direct Expenditures and Obligations for Stanislaus County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**2,046,853,140**
Retirement & Disability Payments for Individuals	841,225,932
Other Direct Payments for Individuals	442,504,442
Direct Payments Other than for Individuals	28,060,609
Grants (Block, Formula, Project, and Cooperative Agreements)	549,591,183
Procurement Contracts	109,581,064
Salaries and Wages	75,889,910
Total Direct Expenditures or Obligations - Defense	**41,098,521**
Total Direct Expenditures or Obligations - Non-Defense	**2,005,754,619**
Other Federal Assistance*	
Direct Loans	5,721,089
Guaranteed/Insured Loans	266,351,310
Insurance	276,608,317

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	6,467,450
Coal Mine Workers' Compensation	59,232
Federal Employees Compensation	4,079,549
Social Insurance for Railroad Workers	6,161,239
Social Insurance for RR Workers - Unemployment & Sickness Benefits	78,426
Compensation for Service-Connected Deaths for Veterans' Dependents	816
Pension for Non-Service-Connected Disability for Veterans	2,570,332
Pension to Veterans Surviving Spouses and Children	522,024
Veterans Compensation for Service-Connected Disability	25,577,702
Veterans Dependency & Indemnity Compensation for Service-Connected Death	4,188,539
Pension Plan Termination Insurance	402,245
Social Security Disability Insurance	126,034,794

Program Name	Amount in Dollars
Social Security Retirement Insurance	397,421,808
Social Security Survivors Insurance	128,454,209
Special Benefits for Disabled Coal Miners (Black Lung)	77,805
Supplemental Security Income	76,432,654
Federal Retirement and Disability Payments — Military	22,654,000
Federal Retirement and Disability Payments — Civilian	39,029,972
Retirement and Disability Payments-Coast Guard/uniformed Employees	816,135
Retirement and Disability Payments — Foreign Service Officers	146,883
Federal Retirement and Disability Payments — Public Health Service	50,118
Retirement & Disability Payments for Individuals Total	**841,225,932**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	648,661
Food Stamps	29,354,371
Environmental Quality Incentives Program	438,869
Automobiles and Adaptive Equipment for Certain Disabled Veterans	40,665
Vocational Rehabilitation for Disabled Veterans	158,592
Survivors and Dependents Educational Assistance	388,528
Post-Vietnam Era Veterans' Educational Assistance	190
All Volunteer Force Educational Assistance	1,743,031
Federal Supplemental Educational Opportunity Grants	470,673
Federal Work Study Program	741,618
Federal Perkins Loan Program-Federal Capital Contributions	-9,283
Federal Pell Grant Program	18,786,916
Medicare-Hospital Insurance	218,641,670
Medicare-Supplementary Medical Insurance	171,099,941
Other Direct Payments for Individuals Total	**442,504,442**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	2,742
Dairy Indemnity Programs	14,826,051
Production Flexibility Payments for Contract Commodities	3,744,727
Wetlands Reserve Program	37,869

Program Name	Amount in Dollars
Crop Insurance	7,542,255
Public and Indian Housing	793,215
Public Housing Drug Elimination Program	128,402
Flood Insurance	1,135
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	984,213
Direct Payments Other than for Individuals Total	**28,060,609**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Agricultural Research-Basic and Applied Research	5,000
Plant and Animal Disease, Pest Control and Animal Care	647,992
Crop Disaster Program	15,524
National School Lunch Program	12,970,181
Special Supplemental Food Program for Women, Infants, and Children	10,350,010
Emerging Markets Program	139,000
Community Facilities Loans and Grants	31,275
Rural Business Enterprise Grants	75,000
Quality Samples Program	10,000
Multifamily Housing Service Coordinators	28,063
Community Development Block Grants/entitlement Grants	5,427,640
Emergency Shelter Grants Program	106,894
Shelter plus Care	146,467
Home Investment Partnerships Program	1,611,822
Community Outreach Partnership Center Program	33,762
Section 8 Housing Choice Vouchers	22,144,917
Public Housing Capital Funds	847,218
San Luis Unit, Central Valley Project	135,019
California Bay Delta Environmental Enhancement, Pub.L. 104-333	25,620
Fish and Wildlife Enhancement	1,881,760
Local Law Enforcement Block Grants Program	503,464
State Criminal Alien Assistance Program	199,912
Bulletproof Vest Partnership Program	8,451

Program Name	Amount in Dollars
Public Safety Partnership and Community Policing Grants	-90,228
WJA Incentives Grant-Section503 Grants to States	-7,673
Airport Improvement Program	4,041,114
Highway Planning and Construction	39,730,608
Federal Transit-Capital Investment Grants	689,130
Dot Miscellaneous Grant Awards	62,500
Education and Human Resources	163,144
Title I Grants to Local Education Agencies	20,292,215
International:Overseas-Group Projects Abroad	60,000
Special Education-Grants to States	11,976,129
Higher Education-Institutional Aid	1,041,792
Impact Aid	24,302
Trio-Student Support Services	600,349
Trio-Talent Search	304,709
Trio-Upward Bound	267,481
Indian Education-Grants to Local Educational Agencies	64,441
Centers for Independent Living	491,131
Bilingual Education-Professional Development	250,000
21st Century Community Learning Centers	569,789
Spec Ed-Personnel Preparation to Improve Services & Results for Children	199,996
Community Technology Centers	484,042
Rural Education Achievement Program	133,233
Transitional Living for Homeless Youth	199,930
Temporary Assistance for Needy Families	55,946,149
Child Support Enforcement	8,096,762
Low Income Home Energy Assistance	1,346,207
Family Violence Prevention & Services/grants for Battered Womans Shelter	238,496
Head Start	33,914,523
Runaway and Homeless Youth	199,880
Social Services Block Grant	2,400,013

Program Name	Amount in Dollars
State Children's Insurance Program (Chip)	14,741,887
State Survey and Certification of Health Care Providers and Suppliers	588,153
Medical Assistance Program	288,719,223
Block Grants for Prevention and Treatment of Substance Abuse	3,492,591
Emergency Food and Shelter National Board Program	434,573
Assistance to Firefighters Grant	579,601
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**549,591,183**
Procurement Contracts	
Procurement Contracts — Dept of Defense	14,974,521
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	78,011,000
Procurement Contract-U.S. Postal Service	16,595,543
Procurement Contracts Total	**109,581,064**
Salaries and Wages	
Salaries and Wages-Dept of Defense (Active Military Employees)	178,000
Salaries and Wages — Dept of Defense (Inactive Military Employees)	2,750,000
Salaries and Wages — Dept of Defense (Civilian Employees)	542,000
Salaries and Wages — All Fed Govt Civilian Employees Except Defense & USPS	11,145,927
Salaries and Wages — U.S. Postal Service	61,273,983
Salaries and Wages Total	**75,889,910**
Direct Loans	
Commodity Loans and Loan Deficiency Payments	148,485
Farm Operating Loans	2,813,220
Farm Ownership Loans	400,000
Federal Direct Student Loans	2,359,384
Direct Loans Total	**5,721,089**
Guaranteed/insured Loans	
Farm Operating Loans	1,225,540
Farm Ownership Loans	818,450
Very Low to Moderate Income Housing Loans	373,626

Program Name	Amount in Dollars
Business and Industry Loans	5,070,000
Mortgage Insurance Homes	218,182,849
Mortgage Insurance Purchase of Units in Condominiums	1,439,738
Property Improvement Loan Insurance for Improving Existing Structure	-24,362
Small Business Loans	9,339,444
Certified Development Company Loans (504 Loans)	11,237,000
Veterans Housing Guaranteed and Insured Loans	18,689,025
Guaranteed/insured Loans Total	**266,351,310**
Insurance	
Crop Insurance	103,376,729
Bond Guarantees for Surety Companies	1,179,940
Flood Insurance	172,051,648
Insurance Total	**276,608,317**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 118. Federal Direct Expenditures and Obligations for Tulare County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**1,634,097,217**
Retirement & Disability Payments for Individuals	580,506,578
Other Direct Payments for Individuals	336,045,303
Direct Payments Other than for Individuals	46,969,593
Grants (Block, Formula, Project, and Cooperative Agreements)	557,386,006
Procurement Contracts	43,819,753
Salaries and Wages	69,369,984
Total Direct Expenditures or Obligations - Defense	**33,388,323**
Total Direct Expenditures or Obligations - Non-Defense	**1,600,708,894**
Other Federal Assistance*	
Direct Loans	37,593,507
Guaranteed/Insured Loans	318,367,898
Insurance	1,268,258,576

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	5,853,035
Coal Mine Workers' Compensation	32,700
Federal Employees Compensation	1,522,683
Social Insurance for Railroad Workers	2,436,304
Social Insurance for RR Workers - Unemployment & Sickness Benefits	53,016
Compensation for Service-Connected Deaths for Veterans' Dependents	1,830
Pension for Non-Service-Connected Disability for Veterans	2,039,053
Pension to Veterans Surviving Spouses and Children	483,866
Veterans Compensation for Service-Connected Disability	16,435,586
Veterans Dependency & Indemnity Compensation for Service-Connected Death	2,684,117
Pension Plan Termination Insurance	233,349
Social Security Disability Insurance	74,712,528

Program Name	Amount in Dollars
Social Security Retirement Insurance	279,204,749
Social Security Survivors Insurance	99,064,623
Special Benefits for Disabled Coal Miners (Black Lung)	11,969
Supplemental Security Income	58,563,764
Federal Retirement and Disability Payments — Military	14,932,000
Federal Retirement and Disability Payments — Civilian	21,878,702
Retirement and Disability Payments-Coast Guard/uniformed Employees	208,851
Retirement and Disability Payments — Foreign Service Officers	74,444
Federal Retirement and Disability Payments — Public Health Service	79,409
Retirement & Disability Payments for Individuals Total	**580,506,578**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	4,810,913
Food Stamps	33,383,659
Environmental Quality Incentives Program	324,150
2000 Quality Loss Program	5,492
Indian Social Services-Welfare Assistance	5,792
Indian Education Assistance to Schools	18,600
Automobiles and Adaptive Equipment for Certain Disabled Veterans	1,424
Vocational Rehabilitation for Disabled Veterans	100,227
Survivors and Dependents Educational Assistance	204,955
Post-Vietnam Era Veterans' Educational Assistance	619
All Volunteer Force Educational Assistance	980,140
Federal Supplemental Educational Opportunity Grants	496,548
Federal Family Education Loans	201
Federal Work Study Program	368,384
Federal Pell Grant Program	17,700,558
Medicare-Hospital Insurance	147,004,549
Medicare-Supplementary Medical Insurance	130,639,092
Other Direct Payments for Individuals Total	**336,045,303**

Program Name	Amount in Dollars
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	82,742
Dairy Indemnity Programs	16,057,718
Production Flexibility Payments for Contract Commodities	12,318,626
Wetlands Reserve Program	710,700
Crop Insurance	15,968,222
Market Access Program	316,958
Wildlife Habitat Incentive Program	10,000
Lamb Meat Adjustment Assistance Program	270,399
Wool and Mohair Loss Assistance Program	137,233
Public and Indian Housing	23,000
Aid to Tribal Governments	167,509
Indian Self-Determination Contract Support	173,070
Indian Adult Education	22,460
Indian Community Fire Protection	77,400
Road Maintenance-Indian Roads	31,791
Agriculture on Indian Lands	15,800
Forestry on Indian Lands	56,481
Indian Rights Protection	8,400
Fish, Wildlife, and Parks Programs on Indian Lands	3,400
Reclamation Act/sec. 2/Pub L. 93-638 Awards	25,000
Flood Insurance	54,494
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	438,190
Direct Payments Other than for Individuals Total	**46,969,593**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Agricultural Research-Basic and Applied Research	136,585
Plant and Animal Disease, Pest Control and Animal Care	2,580,112
Crop Disaster Program	796,803
Hispanic Serving Institutions Education Grants	79,760
Secondary Agriculture Education Grants	40,000
Very Low-Income Housing Repair Loans and Grants	152,665

Program Name	Amount in Dollars
Rural Self-Help Housing Technical Assistance	3,995,000
Rural Housing Preservation Grants	100,000
National School Lunch Program	17,308,062
Special Supplemental Food Program for Women, Infants, and Children	6,682,942
Emergency Community Water Assistance Grants	504,600
Community Facilities Loans and Grants	354,243
Rural Cooperative Development Grants	80,579
Economic Adjustment Assistance	150,000
Multifamily Housing Service Coordinators	8,545
Community Development Block Grants/entitlement Grants	2,275,655
Emergency Shelter Grants Program	590,571
Home Investment Partnerships Program	170,418
Opportunities for Youth-YouthBuild Program	41,400
Community Development Block Grants/economic Development Initiative	92,261
Rural Housing and Economic Development	48,201
Indian Community Development Block Grant Program	987,277
Indian Housing Block Grants	519,472
Section 8 Housing Choice Vouchers	12,423,989
Public Housing Capital Funds	475,316
Indian Education-Higher Education Grant Program	26,880
Indian Child Welfare Act - Title II Grants	41,714
Urban Interface Community and Rural Fire Assistance	14,000
Youth Programs	20,000
Fish and Wildlife Enhancement Facilities	81,949
San Luis Unit, Central Valley Project	1,446,000
Fish and Wildlife Enhancement	104,404
Local Law Enforcement Block Grants Program	406,397
State Criminal Alien Assistance Program	495,203
Bulletproof Vest Partnership Program	50,649
Public Safety Partnership and Community Policing Grants	50,000
Wia Youth Activities	13,633

Program Name	Amount in Dollars
Employment and Training Administration Pilots, Demos & Research	-2,130
Migrant and Seasonal Farmworkers	3,834,584
Native American Employment and Training	95,372
Airport Improvement Program	1,898,000
Highway Planning and Construction	15,934,960
Federal Transit Formula Grants	9,809,149
Construction Grants for Wastewater Treatment Works	-29,124
Water Pollution Control-State and Interstate Program Support	46,457
Nonpoint Source Implementation Grants	30,000
Indian Environmental General Assistance Program	119,982
Title I Grants to Local Education Agencies	27,372,331
Special Education-Grants to States	11,563,137
Higher Education-Institutional Aid	856,002
Impact Aid	137,095
Trio-Student Support Services	240,677
Indian Education-Grants to Local Educational Agencies	125,972
Migrant Education - High School Equivalency Program	397,100
Safe and Drug-Free Schools and Communities-National Programs	609,026
Bilingual Education-Professional Development	194,860
Fund for the Improvement of Education	149,072
21st Century Community Learning Centers	919,031
Bilingual Education: Comprehensive School Grants	215,572
Teacher Quality Enhancement Grants	467,433
Community Technology Centers	475,850
Rural Education Achievement Program	721,968
Special Program. For the Aging-Title VI, Grants to Indians Tribes & Hawaii	76,780
National Family Caregiver Support	14,180
Nutrition Services Incentive Program	3,043
Community Health Centers	2,309,374
Indian Health Services Health Management Development Program	186,981
Special Diabetes Program for Indians-Diabetes Prev and Treat.	186,981

Program Name	Amount in Dollars
Projects	
Health Centers Grants for Migrant and Seasonal Farmworkers	2,188,553
Temporary Assistance for Needy Families	69,576,938
Child Support Enforcement	10,069,468
Low Income Home Energy Assistance	1,979,194
Head Start	16,721,088
Child Welfare Services State Grants	6,821
Social Services Block Grant	2,322,164
State Children's Insurance Program (Chip)	15,441,218
State Survey and Certification of Health Care Providers and Suppliers	616,053
Medical Assistance Program	302,415,587
Block Grants for Prevention and Treatment of Substance Abuse	2,762,516
Retired and Senior Volunteer Program (RSVP)	124,975
Emergency Food and Shelter National Board Program	504,587
Assistance to Firefighters Grant	351,844
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**557,386,006**
Procurement Contracts	
Procurement Contracts — Dept of Defense	12,023,323
Procurement Contracts — All Fed Govt Agencies Other than Defense & Usps	24,407,777
Procurement Contracts — U.S. Postal Service	7,388,653
Procurement Contracts Total	**43,819,753**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Active Military Employees)	70,000
Salaries and Wages — Dept of Defense (Inactive Military Employees)	5,757,000
Salaries and Wages — Dept of Defense (Civilian Employees)	606,000
Salaries and Wages — All Fed Govt Civilian Employees Except Defense & USPS	35,656,635
Salaries and Wages — U.S. Postal Service	27,280,349
Salaries and Wages Total	**69,369,984**

Program Name	Amount in Dollars
Direct Loans	
Commodity Loans and Loan Deficiency Payments	152,882
Farm Operating Loans	859,710
Very Low to Moderate Income Housing Loans	6,113,341
Rural Rental Housing Loans	500,000
Very Low-Income Housing Repair Loans and Grants	38,120
Water and Waste Disposal System for Rural Communities	3,000,000
Intermediary Relending Program	500,000
Federal Direct Student Loans	26,429,454
Direct Loans Total	**37,593,507**
Guaranteed/insured Loans	
Farm Operating Loans	1,936,540
Farm Ownership Loans	1,852,000
Very Low to Moderate Income Housing Loans	220,542
Business and Industry Loans	5,315,000
Rehabilitation Mortgage Insurance	494,786
Mortgage Insurance Homes	267,659,610
Mortgage Insurance Purchase of Units in Condominiums	120,050
Small Business Loans	14,766,129
Certified Development Company Loans (504 Loans)	10,024,000
Veterans Housing Guaranteed and Insured Loans	15,979,241
Guaranteed/insured Loans Total	**318,367,898**
Insurance	
Crop Insurance	309,589,670
Bond Guarantees for Surety Companies	1,713,240
Flood Insurance	956,955,666
Insurance Total	**1,268,258,576**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 119. Federal Direct Expenditures and Obligations for Mariposa County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**134,623,027**
Retirement & Disability Payments for Individuals	50,206,943
Other Direct Payments for Individuals	23,097,349
Direct Payments Other than for Individuals	22,546
Grants (Block, Formula, Project, and Cooperative Agreements)	15,258,119
Procurement Contracts	19,592,384
Salaries and Wages	26,445,686
Total Direct Expenditures or Obligations - Defense	**3,634,897**
Total Direct Expenditures or Obligations - Non-Defense	**130,988,130**
Other Federal Assistance*	
Direct Loans	6,200,000
Guaranteed/Insured Loans	3,270,869
Insurance	0

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Coal Mine Workers' Compensation	9,516
Federal Employees Compensation	982,710
Social Insurance for Railroad Workers	277,616
Pension for Non-Service-Connected Disability for Veterans	140,333
Pension to Veterans Surviving Spouses and Children	32,781
Veterans Compensation for Service-Connected Disability	2,186,769
Veterans Dependency & Indemnity Compensation for Service-Connected Death	338,813
Pension Plan Termination Insurance	21,412
Social Security Disability Insurance	6,071,842
Social Security Retirement Insurance	24,615,577
Social Security Survivors Insurance	6,340,812
Supplemental Security Income	1,086,033
Federal Retirement and Disability Payments — Military	2,457,000

Program Name	Amount in Dollars
Federal Retirement and Disability Payments — Civilian	5,571,818
Retirement and Disability Payments-Coast Guard/uniformed Employees	73,911
Retirement & Disability Payments for Individuals Total	**50,206,943**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	1,688,094
Food Stamps	851,616
Environmental Quality Incentives Program	48,895
Vocational Rehabilitation for Disabled Veterans	9,156
Survivors and Dependents Educational Assistance	30,948
Post-Vietnam Era Veterans' Educational Assistance	37
All Volunteer Force Educational Assistance	24,183
Medicare-Hospital Insurance	11,175,695
Medicare-Supplementary Medical Insurance	9,268,725
Other Direct Payments for Individuals Total	**23,097,349**
Direct Payments Other than for Individuals	
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	22,546
Direct Payments Other than for Individuals Total	**22,546**
Grants (Block, Formula, Project, and Cooperative Agreements)	
National School Lunch Program	217,308
Special Supplemental Food Program for Women, Infants, and Children	678,845
Water and Waste Disposal System for Rural Communities	1,800,000
Advanced Technology Program	231,741
Section 8 Housing Choice Vouchers	553,422
Public Housing Capital Funds	21,173
Law Enforcement Cooperative Agreements (Leca)	5,000
Local Law Enforcement Block Grants Program	24,741
State Criminal Alien Assistance Program	16,134
Bulletproof Vest Partnership Program	3,400
Airport Improvement Program	137,064
Highway Planning and Construction	1,205,218

Program Name	Amount in Dollars
Research Grants for the Space Program	86,546
Surveys, Studies, Investigations and Special Purpose Grants	242,500
Title I Grants to Local Education Agencies	583,131
Special Education-Grants to States	342,801
Impact Aid	63,552
Indian Education-grants to Local Educational Agencies	48,435
Rural Education Achievement Program	15,175
Temporary Assistance for Needy Families	1,872,362
Child Support Enforcement	270,906
Low Income Home Energy Assistance	579,493
Social Services Block Grant	93,690
State Children's Insurance Program (Chip)	273,623
State Survey and Certification of Health Care Providers and Suppliers	10,916
Medical Assistance Program	5,358,899
Block Grants for Prevention and Treatment of Substance Abuse	473,300
Emergency Food and Shelter National Board Program	8,829
Assistance to Firefighters Grant	39,915
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**15,258,119**
Procurement Contracts	
Procurement Contracts — Dept of Defense	1,177,897
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	18,034,311
Procurement Contracts — U.S. Postal Service	380,176
Procurement Contracts Total	**19,592,384**
Salaries and Wages	
Salaries and Wages — All Fed Govt Civilian Employee Except Defense & USPS	25,042,000
Salaries and Wages — U.S. Postal Service	1,403,686
Salaries and Wages Total	**26,445,686**

Program Name	Amount in Dollars
Direct Loans	
Water and Waste Disposal System for Rural Communities	6,200,000
Direct Loans Total	**6,200,000**
Guaranteed/insured Loans	
Very Low to Moderate Income Housing Loans	769,500
Mortgage Insurance Homes	1,592,885
Small Business Loans	483,875
Veterans Housing Guaranteed and Insured Loans	424,609
Guaranteed/Insured Loans Total	3,270,869

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."

Table 120. Federal Direct Expenditures and Obligations for Tuolumne County, FY2003

County Summary	Amount in Dollars
Total Direct Expenditures or Obligations	**332,011,658**
Retirement & Disability Payments for Individuals	169,573,623
Other Direct Payments for Individuals	70,214,468
Direct Payments Other than for Individuals	491,400
Grants (Block, Formula, Project, and Cooperative Agreements)	58,149,499
Procurement Contracts	11,408,204
Salaries and Wages	22,174,464
Total Direct Expenditures or Obligations - Defense	**7,369,698**
Total Direct Expenditures or Obligations - Non-Defense	**324,641,960**
Other Federal Assistance	
Direct Loans	25,350
Guaranteed/Insured Loans	13,432,874
Insurance	5,986,381

Program Name	Amount in Dollars
Retirement & Disability Payments for Individuals	
Livestock Compensation Program	151,199
Coal Mine Workers' Compensation	7,009
Federal Employees Compensation	520,318
Social Insurance for Railroad Workers	1,109,989
Social Insurance for RR Workers - Unemployment & Sickness Benefits	2,275
Pension for Non-Service-Connected Disability for Veterans	602,936
Pension to Veterans Surviving Spouses and Children	126,439
Veterans Compensation for Service-Connected Disability	6,659,927
Veterans Dependency & Indemnity Compensation for Service-Connected Death	1,295,690
Pension Plan Termination Insurance	141,654
Social Security Disability Insurance	19,310,319
Social Security Retirement Insurance	91,997,343

Program Name	Amount in Dollars
Social Security Survivors Insurance	22,478,487
Special Benefits for Disabled Coal Miners (Black Lung)	3,989
Supplemental Security Income	5,778,962
Federal Retirement and Disability Payments — Military	6,174,000
Federal Retirement and Disability Payments — Civilian	12,950,013
Retirement and Disability Payments-Coast Guard/uniformed Employees	153,055
Retirement and Disability Payments — Foreign Service Officers	110,019
Retirement & Disability Payments for Individuals Total	**169,573,623**
Other Direct Payments for Individuals	
Rural Rental Assistance Payments	844,047
Food Stamps	2,367,437
Environmental Quality Incentives Program	9,149
Indian Social Services-Welfare Assistance	2,550
Indian Education Assistance to Schools	3,000
Vocational Rehabilitation for Disabled Veterans	26,208
Survivors and Dependents Educational Assistance	93,102
Post-vietnam Era Veterans' Educational Assistance	191
All Volunteer Force Educational Assistance	302,484
Federal Supplemental Educational Opportunity Grants	80,396
Federal Work Study Program	65,018
Federal Perkins Loan Program-Federal Capital Contributions	-244
Federal Pell Grant Program	1,205,573
Medicare-Hospital Insurance	33,877,278
Medicare-Supplementary Medical Insurance	31,338,279
Other Direct Payments for Individuals Total	**70,214,468**
Direct Payments Other than for Individuals	
Commodity Loans and Loan Deficiency Payments	250
Production Flexibility Payments for Contract Commodities	3,667
Aid to Tribal Governments	23,702
Consolidated Tribal Government Program	177,391
Indian Economic Development	37,150

Program Name	Amount in Dollars
Agriculture on Indian Lands	135,527
U.S. Postal Service — Other Expenditures (Non-salary/non-procurement)	113,713
Direct Payments Other than for Individuals Total	**491,400**
Grants (Block, Formula, Project, and Cooperative Agreements)	
Plant and Animal Disease, Pest Control and Animal Care	129,943
Crop Disaster Program	85,714
National School Lunch Program	879,580
Special Supplemental Food Program for Women, Infants, and Children	727,594
Economic Development-Support for Planning Organizations	56,000
Indian Community Development Block Grant Program	99,897
Section 8 Housing Choice Vouchers	1,955,921
Public Housing Capital Funds	74,829
Indian Education-Higher Education Grant Program	7,000
Indian Child Welfare Act - Title Ii Grants	83,362
Urban Interface Community and Rural Fire Assistance	5,000
Local Law Enforcement Block Grants Program	45,398
State Criminal Alien Assistance Program	4,996
Bulletproof Vest Partnership Program	7,445
Indian Country Alcohol and Drug Prevention	350,031
Airport Improvement Program	450,000
Highway Planning and Construction	22,472,750
Indian Environmental General Assistance Program	-19,896
Title I Grants to Local Education Agencies	1,838,542
Impact Aid	57,985
Indian Education-Grants to Local Educational Agencies	7,483
Child Care Access Means Parents in School	10,000
Rural Education Achievement Program	129,723
Temporary Assistance for Needy Families	5,691,978
Child Support Enforcement	823,767
Low Income Home Energy Assistance	579,493

Program Name	Amount in Dollars
Social Services Block Grant	221,050
State Children's Insurance Program (Chip)	1,008,468
State Survey and Certification of Health Care Providers and Suppliers	40,234
Medical Assistance Program	19,750,803
Block Grants for Prevention and Treatment of Substance Abuse	498,382
Emergency Food and Shelter National Board Program	24,178
Assistance to Firefighters Grant	51,849
Grants (Block, Formula, Project, and Cooperative Agreements) Total	**58,149,499**
Procurement Contracts	
Procurement Contracts — Dept of Defense	1,190,698
Procurement Contracts — All Fed Govt Agencies Other than Defense & USPS	8,300,093
Procurement Contracts — U.S. Postal Service	1,917,413
Procurement Contracts Total	**11,408,204**
Salaries and Wages	
Salaries and Wages — Dept of Defense (Inactive Military Employees)	5,000
Salaries and Wages — All Fed Govt Civilian Employee Except Defense & USPS	15,090,000
Salaries and Wages — U.S. Postal Service	7,079,464
Salaries and Wages Total	**22,174,464**
Direct Loans	
Farm Operating Loans	20,000
Very Low-Income Housing Repair Loans and Grants	5,350
Direct Loans Total	**25,350**
Guaranteed/insured Loans	
Very Low to Moderate Income Housing Loans	542,000
Business and Industry Loans	5,000,000
Mortgage Insurance Homes	4,818,499
Small Business Loans	1,959,165
Veterans Housing Guaranteed and Insured Loans	1,113,210
Guaranteed/insured Loans Total	**13,432,874**

Program Name	Amount in Dollars
Insurance	
Flood Insurance	5,986,381
Insurance Total	**5,986,381**

Source: Consolidated Federal Funds Report for Fiscal Year 2003. U.S. Census Bureau, Governments Division, Federal Programs Branch. September, 2004.

***** Other federal assistance includes direct and guaranteed loans and insurance programs. These programs are considered "contingent liabilities" of the federal government and are not necessarily direct expenditures or obligations. Only when a loan is in default or an insurance payment is made is there a federal obligation, i.e., a payment. When that occurs, those payments are counted within "direct expenditures and obligations."